SHARP SERVICE MANUAL

No. 00ZUXP115USME



FACSIMILE

MODEL UX-P115

MODEL	SELECTION CODE	DESTINATION
UX-P115	U	U.S.A.

CONTENTS

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri-Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the equipment manufacturer.
Discard used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur.
Mettre au rébut les batteries usagées conformément aux instructions du fabricant.

(Swedish) VARNING
Explosionsfare vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens instruktion.

(German) Achtung
Explosionsgefahr bei Verwendung inkorrekter Batterien.
Als Ersatzbatterien dürfen nur Batterien vom gleichen Typ oder vom Hersteller empfohlene Batterien verwendet werden.
Entsorgung der gebrauchten Batterien nur nach den vom Hersteller angegebenen Anweisungen.

PRECAUTIONS FOR USING LEAD-FREE SOLDER

1. Employing lead-free solder

The **TEL/LIU PWB and Operation Panel PWB** of this model employs lead-free solder.
This is indicated by the "LF" symbol printed on the PWB and in the service manual.
The suffix letter indicates the alloy type of the solder.
Example:

LF a
Sn-Ag-Cu — Indicates lead-free solder of tin, silver and copper.

2. Using lead-free solder

When repairing a PWB with the "LF" symbol, only lead-free solder should be used. (Using normal tin/lead alloy solder may result in cold soldered joints and damage to printed patterns.)
As the melting point of lead-free solder is approximately 40°C higher than tin/lead alloy solder, it is recommended that a dedicated bit is used, and that the iron temperature is adjusted accordingly.

3. Soldering

As the melting point of lead-free solder (Sn-Ag-Cu) is higher and has poorer melting point (flow), to prevent damage to the land of the PWB, extreme care should be taken not to leave the bit in contact with the PWB for an extended period of time.
Remove the bit as soon as a good flow is achieved.
The high content of tin in lead free solder will cause premature corrosion of the bit.
To reduce wear on the bit, reduce the temperature or turn off the iron when it is not required.
Leaving different types of solder on the bit will cause contamination of the different alloys, which will alter their characteristics, making good soldering more difficult.
It will be necessary to clean and replace bits more often when using lead-free solder. To reduce bit wear, care should be taken to clean the bit thoroughly after each use.

CHAPTER 1. GENERAL DESCRIPTION

[1] Specifications

Automatic dialing: 30 numbers

Imaging film: Initial starter roll:
(included with machine): 32 ft.(10 m)
(approx. 30 letter-size pages)
Replacement roll (not included):
UX-5CR 164 ft.(50 m) (one roll yields approx. 150 letter-size pages)

Memory size*: 448 KB (approx. 24 average pages)

Modem speed: 9,600 bps with automatic fallback to lower speed

Transmission time*: Approx. 15 seconds

Resolution: Horizontal: 203 pixels/inch (8 dots/mm)
Vertical:
Standard: 98 lines/inch (3.85 lines/mm)
Fine/Halftone: 196 lines/inch (7.7 lines/mm)
Super fine: 391 lines/inch (15.4 lines/mm)

Automatic document feeder: 10 pages max. (letter/A4, 20-lb. paper)

Recording system: Thermal transfer recording

Halftone (grayscale): 64 levels

Compression scheme: MR, MH, Sharp(H2)

Display: 16-digit LCD display

Applicable telephone line: Public switched telephone network

Paper tray capacity: Letter: Approx. 50 sheets (20-lb. copier paper at room temperature; maximum stack height should not be higher than the line on the tray)
Legal: 5 sheets
Recommended paper weight is 20-lb. Copy Bond

Compatibility: ITU-T (CCITT) G3 mode

Input document size: Automatic feeding:
Width: 5.8 to 8.5” (148 to 216 mm)
Length: 5.5 to 11” (140 to 279 mm)
Manual feeding:
Width: 5.8 to 8.5” (148 to 216 mm)
Length: 5.5 to 23.6” (140 to 600 mm)

Effective scanning width: 8.3” (210 mm) max.

Effective printing width: 8.3” (210 mm) max.

Contrast control: Automatic/Dark selectable

Reception modes: TEL/FAX

Copy function: Single / Multi (99 copies/page)

Telephone function: Yes
(cannot be used if power fails)

Power requirements: 120 V AC, 60 Hz

Operating temperature: 41 - 95°F (5 - 35°C)

Humidity: 25 - 85 % RH

Power consumption: Stand-by: 3.6 W
Maximum: 100 W

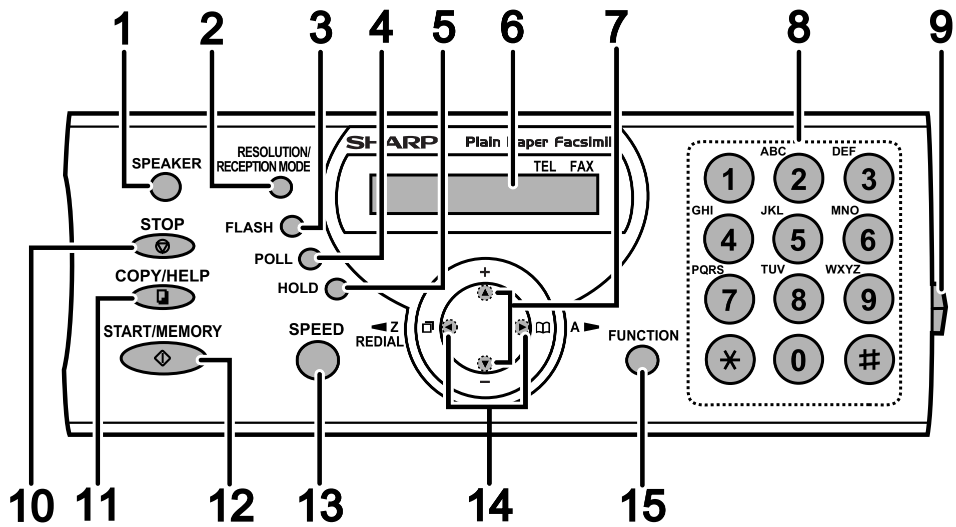
Dimensions (without attachments): Width: 12.9” (327 mm)
Depth: 7.6” (193 mm)
Height: 6.4” (163 mm)

Weight (without attachments): Approx. 6.2 lbs (2.8 kg)

*Based on Sharp Standard Chart at standard resolution in Sharp special mode, excluding time for protocol signals (i.e., ITU-T phase C time only).

As a part of our policy of continuous improvement, SHARP reserves the right to make design and specification changes for product improvement without prior notice. The performance specifications figures indicated are nominal values of production units. There may be some deviations from these values in individual units.

[2] Operation panel



1. SPEAKER key

Press this key to listen to the line and fax tones through the speaker when faxing a document.

Note: **This is not a speakerphone.** You must pick up the handset to talk with the other party.

2. RESOLUTION / RECEPTION MODE key

When a document is in the feeder, press this key to adjust the resolution for faxing or copying. At any other time, press this key to select the reception mode (an arrow in the display will point to the currently selected reception mode).

3. FLASH key

This key is used for Call Waiting and other special services that require subscription from your phone company. Your phone company will provide you with details on how to use the key.

4. POLL key

Press this key after dialing another fax machine to receive a document (previously loaded in the other machine's feeder) without assistance from the operator of the other machine.

5. HOLD key

Press this key to put the other party on hold during a phone conversation.

6. Display

This displays messages and prompts to help you operate the machine.

7. UP and DOWN arrow keys

Enlarge/Reduce setting: When marking a copy of a document, press these keys to select an enlarge/reduce setting.
Volume setting: When a document is not in the feeder, press these keys to change the handset volume when the handset is lifted, the speaker volume when the **SPEAKER** key has been pressed, or the ringer volume at any other time.
FUNCTION key setting: Press these keys after pressing the **FUNCTION** key to scroll through the FUNCTION MODE settings.

8. Number keys

Use these keys to dial numbers, and enter numbers and letters when storing auto-dial numbers.

9. Panel release

Press this release to open the operation panel.

10. STOP key

Press this key to cancel operations before they are completed.

11. COPY/HELP key

When a document is in the feeder, press this key to make a copy of a document. At any other time, press this key to print out the Help List, a quick reference guide to the operation of your fax machine.

12. START/MEMORY key

Press this key after dialing to begin fax transmission. Press this key before dialing to send a fax through memory.

13. SPEED key

Press this key to dial a fax or voice number using an abbreviated 2-digit Speed Dial number.

14. Left and right arrow keys

Auto-dial numbers: When sending a fax or making a phone call, press these keys to scroll through your auto-dial numbers, the "REVIEW CALLS" list (only available if you have Caller ID), and the last number dialed (redial).
FUNCTION key settings: Press the right arrow key after scrolling with the up and down arrow keys to select a **FUNCTION** key setting.

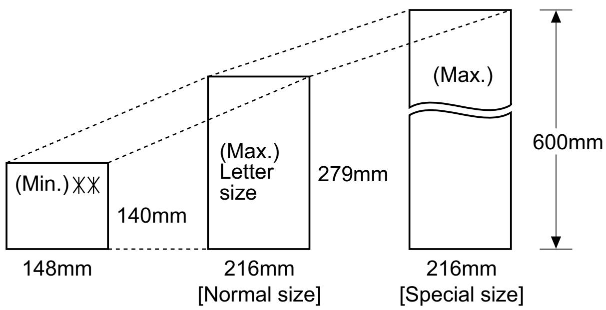
15. FUNCTION key

Press this key to followed by the arrow keys select special functions and setting.

[3] Transmittable documents

1. Document Sizes

Normal size	width	5.8 to 8.5” (148 - 216 mm)
	length	5.5 to 11” (140 - 279 mm)



⁂ Use document carrier sheet for smaller documents.

- With special sizes, only one sheet can be fed into the machine at a time. Insert next page into feeder as current page is being scanned.

2. Paper Thickness & Weight

	10 sheets	1 sheet (Manual)
Paper weight	70 kg 80 g/m^2	70 kg ~ 135 kg 52 g/m^2 ~ 157g/m^2
Paper thickness (ref.)	0.1 mm	0.1 mm ~ 0.18mm
Paper size	LGL (216 mm x 355.6 mm) A4 (210 mm x 297 mm) LTR (216 mm x 279 mm)	
Feeder capacity	A4/LTR: 10 sheets LGL : 1 sheet	

3. Document Types

- Normal paper

  Documents handwritten in pencil (No. 2 lead or softer), fountain pen, ball-point pen, or felt-tipped pen can be transmitted.

  Documents of normal contrast duplicated by a copying machine can also be transmitted.
- Diazo copy (blue print)
- Diazo copy documents of a normal contrast may be transmitted.
- Carbon copy

  A carbon copy may be transmitted if its contrast is normal.

4. Cautions on Transmitting Documents

- Documents written in yellow, greenish yellow, or light blue ink cannot be transmitted.
- Ink, glue, and correcting fluid on documents must be dry before the documents can be transmitted.
- All clips, staples and pins must be removed from documents before transmission.
- Patched (taped) documents should be copied first on a copier and then the copies used for transmission.
- All documents should be fanned before insertion into the feeder to prevent possible double feeds.

5. Automatic Document Feeder Capacity

Number of pages that can be placed into the feeder at anytime is as follows:

Normal size: max. ADF 10 pages

Special size: single sheet only (manual feed)

NOTE: • When you need to send or copy more pages than the feeder limit, place additional pages in feeder when last page in feeder is being scanned.

• Place additional pages carefully and gently in feeder. If force is used, double-feeding or a document jam may result.

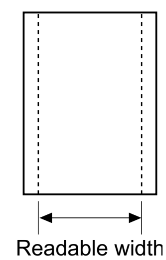
6. Readable Width & Length

The readable width and length of a document are slightly smaller than the actual document size.

Note that characters or graphics outside the effective document scanning range will not be read.

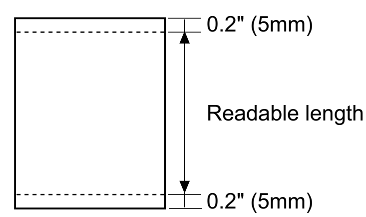
- Readable width

  8.3” (210mm), max



- Readable length

  This is the length of the document sent minus 0.2” (5mm) from the top and bottom edges.



[4] Installation

1. Site selection

Take the following points into consideration when selecting a site for this model.

ENVIRONMENT

- The machine must be installed on a level surface.
- Keep the machine away from air conditioners, heaters, direct sunlight, and dust.
- Provide easy access to the front, back, and sides of the machine. In particular, keep the area in front of the machine clear, or the original document may jam as it comes out after scanning.
- The temperature should be between 41 - 95°F (5 - 35°C).
- The humidity should be between 25% and 85% (without condensation).

ELECTRICITY

AC 120V, 60Hz, grounded (3-prong) AC outlet is required.

Caution!

- Connection to a power source other than that specified will cause damage to the equipment and is not covered under the warranty.
- If your area experiences a high incidence of lightning or power surges, we recommend that you install a surge protector for the power and telephone lines. Surge protectors can be purchased at most telephone specialty stores.

If the machine is moved from a cold to a warm place...

Condensation may form on the reading glass if machine is moved from a cold to a warm place, this will prevent proper scanning of documents for transmission. Turn on the power and wait approximately 2 hours before using machine.

TELEPHONE JACK

A standard RJ11C single-line wall telephone jack must be located near the machine. This is the telephone jack commonly used in most homes and offices.

- Plugging the fax machine into a jack which is not RJ11C single-line wall telephone jack may result in damage to the machine or your telephone system. If you do not know what kind of jack you have, or need to have one installed, contact the telephone company.

2. Loading the imaging film

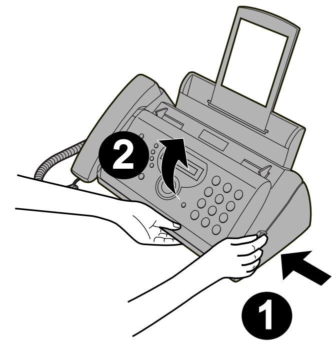
Your fax uses a roll of imaging film to create printed text and images. The print head in the fax applies heat to the imaging film to transfer ink to the paper. Follow the steps below to load or replace the film.

- The initial starter roll of imaging film included with your fax can print about 30 letter-size pages
- When replacing the film, use a roll of Sharp UX-5CR imaging film. One roll can print about 150 letter-size pages.

Use only Sharp Genuine Supplies with this logo:

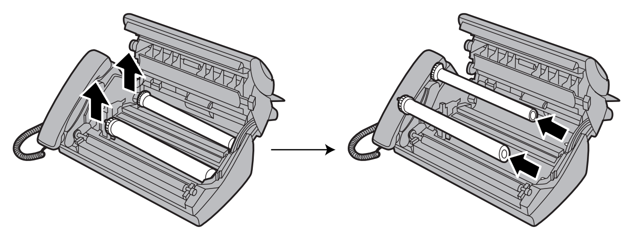
GENUINE SUPPLIES

1) Remove the paper from the paper tray and open the operation panel (press 1).

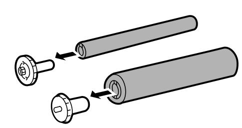


If you are loading the imaging film for the first time, go to Step 4.

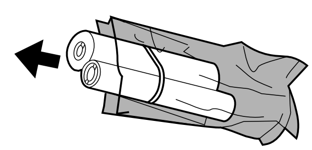
2) Remove the used film and empty spool.



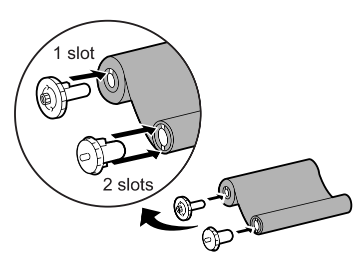
3) Remove the two green gears from the spools.
   DO NOT DISCARD THE TWO GREEN GEARS!



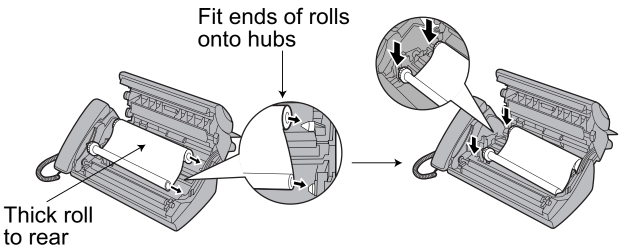
4) Remove the new roll of imaging film from its packaging.
   - Cut the band that holds rolls together.



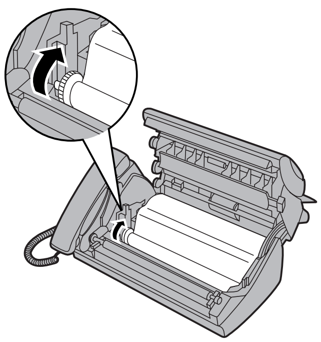
5) Insert the green gears.
   Make sure the gears fit into the slots in the ends of the rolls.



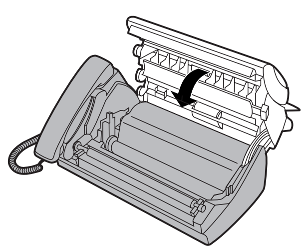
6) Insert the film into the print compartment.



7) Rotate the front gear as shown until the film is taut.

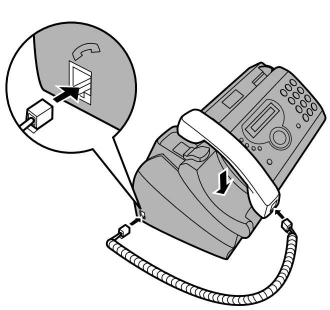


8) Close the operation panel (press down on both sides to make sure it clicks into place).



3. Connections

1) Connect the handset as shown and place it on the handset rest.
   - The ends of the handset cord are identical, so they will go into either jack.
   - Make sure the handset cord goes into the jack marked with a handset symbol on the side of the machine.
   - Use the handset to make ordinary phone calls, or to transmit and receive faxes manually.

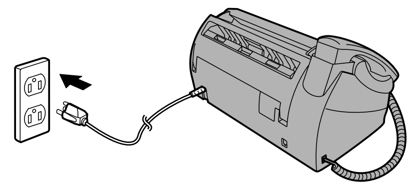


2) Plug the power cord into a 120 V, 60 Hz, grounded AC (3-prong) outlet.

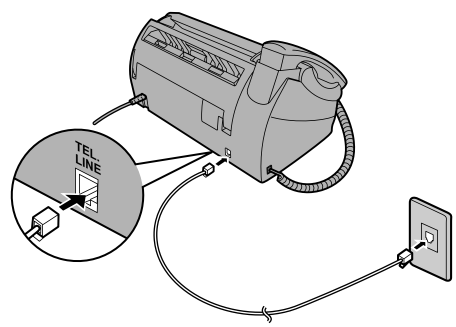
   Caution!

   Do not plug the power cord into any other kind of outlet. This will damage the machine and is not covered under the warranty.

   - The machine does not have a power on/off switch, so the power is turned on and off by simply plugging in or unplugging the power cord.



3) Insert one end of the line cord into the jack on the back of the machine marked **TEL. LINE**. Insert the other end into a standard (RJ11C) single-line wall telephone jack.

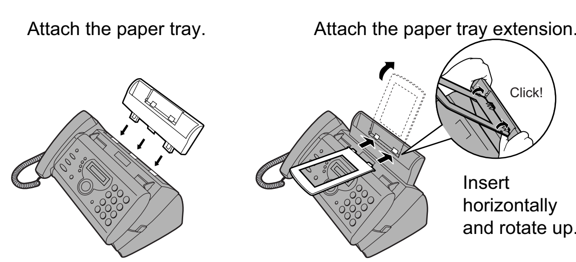


Setting the dial mode: The fax machine is set for tone dialing. If you are on a pulse dial line, you must set the fax machine for pulse dialing. Press the keys on the operation panel as follows:

	Display:
1. Press FUNCTION once and ▲ once.	OPTION SETTING ▲▼
2. Press ► once and ▼ twice.	DIAL MODE ▲▼
3. Press ► once.	1=TONE, 2=PULSE
4. Select the dial mode: TONE: 1 PULSE: 2	The display briefly shows your selection, then: DISTINCTIVE ▲▼
5. Press STOP to exit.	

4) Attach the paper tray and paper tray extension.

Note: The paper tray extension has a top side and a bottom side. If you cannot insert the tabs into the holes, turn the support over.



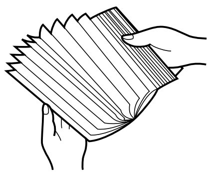
4. Loading printing paper

You can load letter or legal size paper in the paper tray. Recommended paper weight is 20-lb. Copy Bond. The maximum number of sheets is as follows:

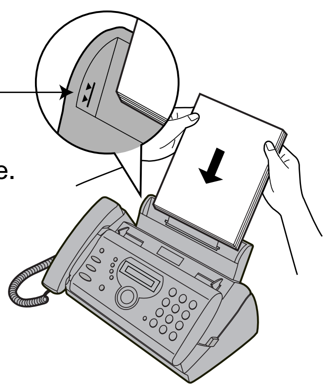
Letter size: Approx. 50 sheets (20-lb. copier paper at room temperature; maximum stack height should not be higher than the line on the tray)

Legal size: 5 sheets

1) Fan the paper, and then tap the edge against a flat surface to even the stack. Make sure the stack edges are even.



2) Insert the stack of paper into the tray, PRINT SIDE DOWN.
   - If paper remains in the tray, take it out and combine it into a single stack with the new paper.
   - Be sure to load the paper so that printing takes place on the **print** side of the paper. Printing on the reverse side may result in poor print quality.
   - **GENTLY LOAD PAPER INTO THE PAPER TRAY.**
   - **DO NOT FORCE IT DOWN INTO THE FEED SLOT.**



Note: Do not use paper that has already been printed on, or paper that is curled.

Note: If at any time the display shows the alternating messages at right, check the printing paper. If the tray is empty, add paper. If these is paper in the tray, take it out and then reinsert it.

ADD PAPER &
↓ ↑
PRESS START KEY

When you are finished, press START/MEMORY.

3) Setting the paper size.

The fax has been set at the factory to scale received faxes to letter size paper. If you loaded legal paper, you must change the paper size setting to LEGAL.

	Display:
1. Press FUNCTION once and ▲ once.	OPTION SETTING
2. Press ► once and ▲ twice.	PAPER SIZE SET
3. Press ► once.	1=LETTER, 2=LEGAL
4. Select the paper size: LETTER: 1 LEGAL: 2	The display briefly shows your selection, then: COPY CUT-OFF
5. Press STOP to return to the date and time display.	

4) Print contrast setting.

You fax has been set at the factory to print at normal contrast. If desired, you can change the print contrast setting to LIGHT.

	Display:
1. Press FUNCTION once and ▲ once.	OPTION SETTING
2. Press ► once and ▲ 3 times.	PRINT CONTRAST
3. Press ► once.	1: NORMAL
4. Select the print contrast: NORMAL: 1 LIGHT: 2	The display briefly shows your selection, then: PAPER SIZE SET
5. Press STOP to return to the date and time display.	

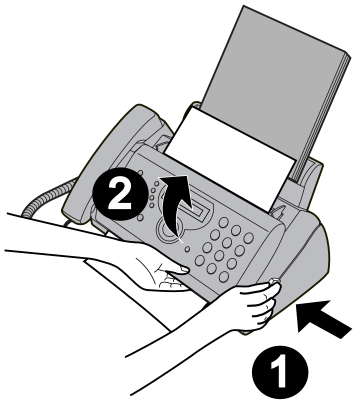
5. Clearing a jammed document

If the original document doesn't feed properly during transmission or copying, or DOCUMENT JAMMED appears in the display, first try pressing the START/MEMORY key. If the document doesn't feed out, remove it as explained below.

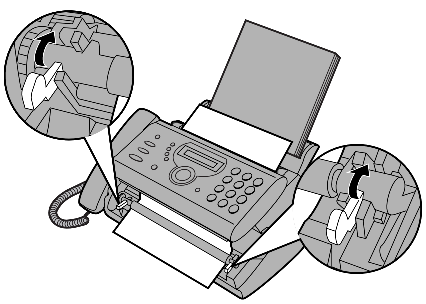
Important:

Do not try to remove a jammed document without releasing it as explained below. This may damage the feeder mechanism.

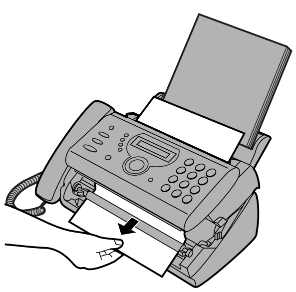
1) Press ❶ and slowly open the operation panel until it is half open.



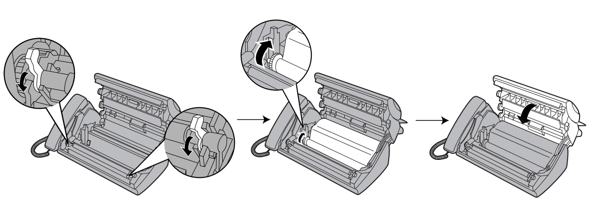
2) Flip up the green levers on each side of the white roller.



3) Gently and remove the document.
   • Be careful not to tear the document.

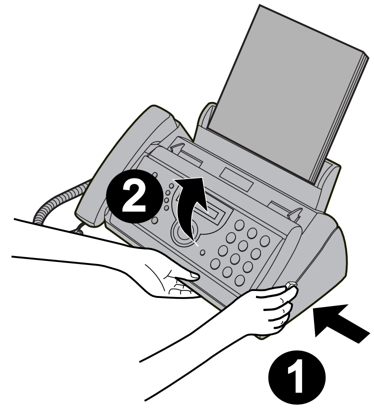


4) Flip down the green levers on each side of the white roller. Rotate the front gear until the film is taut, and then close the operation panel (press down on both sides to make sure it clicks into place).

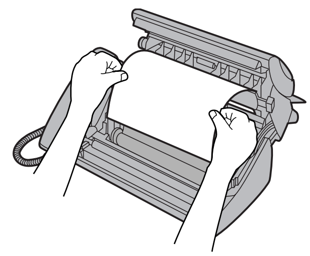


6. Clearing jammed printing paper

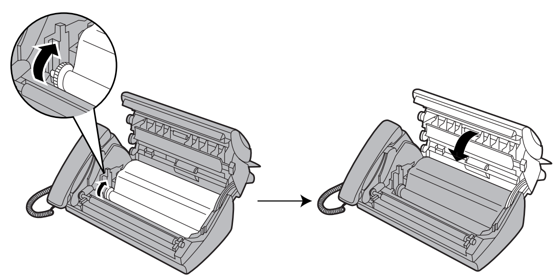
1) Open the operation panel (press ❶)



2) Gently pull the jammed paper out of the machine, making sure no torn pieces of paper remain in the print compartment or rollers.



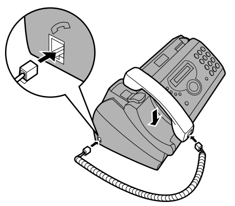
3) Rotate the front gear until the film is taut, and then close the operation panel (press down on both sides to make sure it clicks into place).



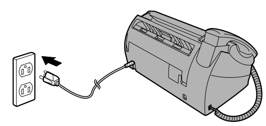
[5] Quick setup guide

Note: To enter your name and fax number and set the date and time so that they appear at the top of each fax you send, see page Chapter 1 of your operation manual.

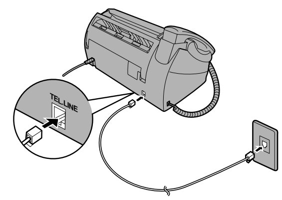
1 Connect the handset and place it on the handset rest.



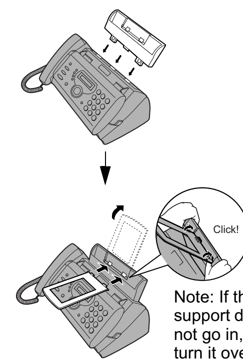
2 Plug the power cord into a 120 V grounded outlet.



3 Connect the telephone line cord to the **TEL. LINE** jack and a wall telephone jack.



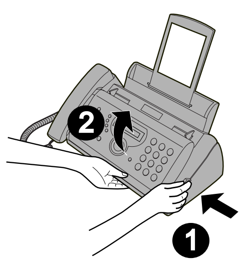
4 Attach the paper tray and document support.



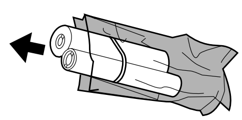
Note: If the support does not go in, turn it over.

5 Load the imaging film.

1. Open the operation panel (press ❶).

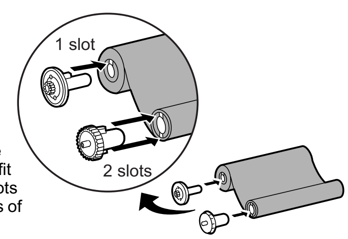


2. Remove the imaging film from its packaging. Cut the band that holds the rolls together.



3. Insert the green gears.

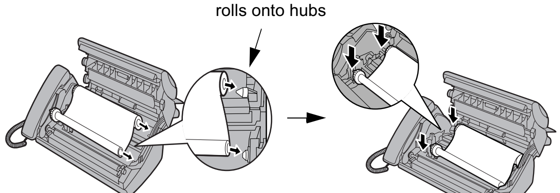
IMPORTANT: Do NOT discard the green gears. They are not included with replacement imaging film.



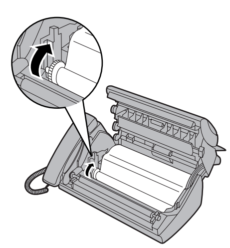
Make sure the gears fit into the slots in the ends of the rolls.

4. Insert the film into the print compartment.

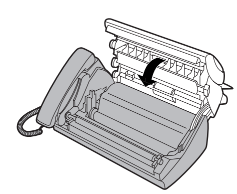
Fit ends of rolls onto hubs



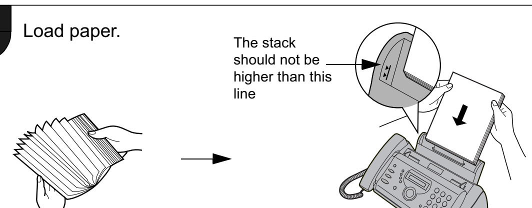
5. Rotate the front spool as shown until the film is taut.



6. Close the operation panel (press down on both sides to make sure it clicks into place).



6 Load paper.



The stack should not be higher than this line

Insert the paper **print side down.**

- **GENTLY LOAD PAPER INTO THE PAPER TRAY.**
- **DO NOT FORCE IT DOWN INTO THE FEED SLOT.**

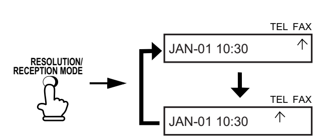
Note: If you loaded legal paper, see of the operation manual to change the paper size setting to LEGAL.

7 Select the reception mode for incoming faxes and voice calls:

FAX mode: The machine automatically answers all calls and begins fax reception.

TEL mode: Lift the handset when the machine rings.

Press START/MEMORY to begin fax reception.

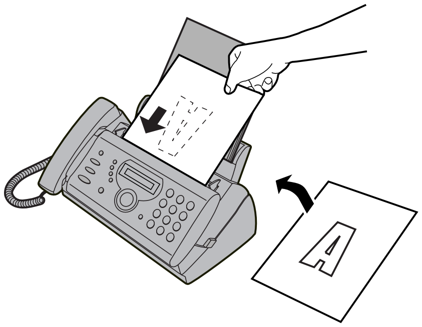


The arrow points to the selected reception mode.

[6] Quick reference guide

1. Sending Faxes

Place your document (up to 10 pages) face down in the document feeder.



1.1. Normal Dialing

1. Lift the handset or press SPEAKER.
2. Dial the fax number.
3. Wait for the reception tone (if a person answers, ask them to press their Start key).
4. Press START/MEMORY.

1.2. Speed Dialing

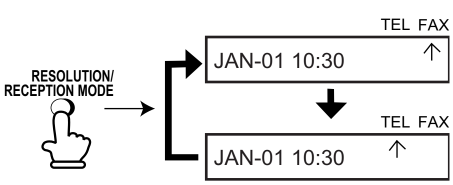
1. Press SPEED.
2. Enter the 2-digit Speed Dial number.
3. Press START/MEMORY.

1.3. Search Dialing

1. Press ► or ◄ until the name of the other party appears in the display (if no name was stored, the number will appear).
2. Press START/MEMORY.

2. Receiving Faxes

Press the RESOLUTION/ RECEPTION MODE until the arrow in the display points to the desired reception mode.



FAX mode: The fax machine automatically answers and receives the incoming document.

TEL mode: Answer all calls (even faxes) by picking up the handset. To begin fax reception, press START/MEMORY.

3. Storing Auto Dial Numbers

1. Press FUNCTION once and ► once.
2. Enter a 2-digit Speed Dial number (01 to 30).
3. Enter the fax number and press START/MEMORY.
4. Enter a name by pressing number keys. (To enter two letters in succession that require the same key, press ► after entering the first letter.)

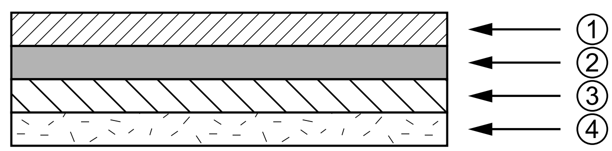
SPACE = 1	G = 4	N = 6 6	U = 8 8
A = 2	H = 4 4	O = 6 6 6	V = 8 8 8
B = 2 2	I = 4 4 4	P = 7	W = 9
C = 2 2 2	J = 5	Q = 7 7	X = 9 9
D = 3	K = 5 5	R = 7 7 7	Y = 9 9 9
E = 3 3	L = 5 5 5	S = 7 7 7 7	Z = 9 9 9 9
F = 3 3 3	M = 6	T = 8	

5. Press START/MEMORY and then STOP.

[7] Option imaging film specifications

1. Structure

This article is composed of polyester film coated with heat-resistant layer, matt layer and hot melt ink layer, leader film and paper core. Ink film specification is "DNP standard ink film HC".



① Heat Resistant Layer
② Base Film
③ Matt Layer
④ Hot melt Ink Layer

2. Details of compositions

2.1. Base film

Heading	Requirements	Measuring method
Material	Polyethylene-terephthalate	–

2.2. Heat resistant layer

Heading	Requirements	Measuring method
Grade	HR Mixer P-5	–

2.3. Matt layer

Heading	Requirements	Measuring method
Grade	ML Sumi	–

2.4. Hot melt ink layer

Heading	Requirements	Measuring method
Grade	#507W	–

CHAPTER 2. ADJUSTMENTS

[1] Adjustments

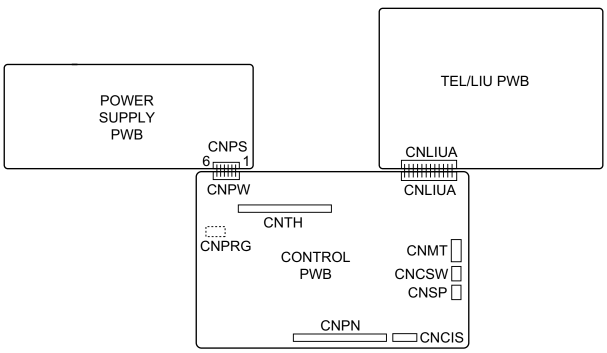
1. General

Since the following adjustments and settings are provided for this model, make adjustments and/or setup as necessary.

2. Adjustments of output voltage (FACTORY ONLY)

1. Install the power supply unit in the machine.
2. Set the recording paper and document.
3. When the document is loaded, power is supplied to the output lines. Confirm that outputs are within the limits below.

2.1. Output voltage settings



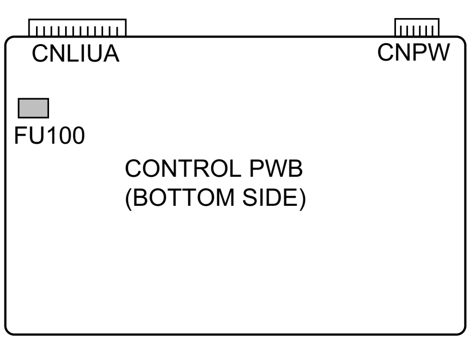
Output	Voltage limits
Vreg(+5V)	4.25V ~ 5.75V
+24V	23.3V ~ 24.7V

Connector No. / Pin No.	CNPW
1	+24V
2	+24V
3	MG
4	MG
5	DG
6	Vreg(+5V)

3. IC protectors replacement

ICPs (IC Protectors) are installed to protect the motor driver circuit. ICPs protect various ICs and electronic circuits from an overcurrent condition.

The location of ICPs are shown below:



1) FU100 (KAB3202) is installed in order to protect IC's from an overcurrent generated in the motor drive circuit. If FU100 is open, replace it with a new one.

4. Settings

4.1. Dial mode selector

DIAL mode (Soft Switch No. SW-B4 DATA No. 3)

(step 1) Select "OPTION SETTING".

KEY : FUNCTION → ▼▼▼ → ▶

DISPLAY: OPTION SETTING ▲▼▶ NUMBER OF RING▲▼▶

(step 2) Select "DIAL MODE".

KEY: Push ▼ until DIAL MODE ▲▼▶ is indicated because the number of ▼ 's changes by the model. → ▶

DISPLAY: DIAL MODE ▲▼▶ 1=TONE, 2=PULSE

(step 3) Select, using "1" or "2".

KEY: (1)

DISPLAY: TONE SELECTED

KEY: (2)

DISPLAY: PULSE SELECTED

(step 4) End, using the "STOP" key.

KEY: STOP

5. Volume adjustments

You can adjust the volume of the speaker, handset, and ringer using the UP and DOWN keys.

5.1. Speaker

1. Press the **SPEAKER** key.
2. Press the **UP** or **DOWN** key until the display shows the desired volume level.

Display:
SPEAKER: HIGH
↕
SPEAKER: MIDDLE
↕
SPEAKER: LOW

• Press **SPEAKER** key again to turn off the speaker.

5.2. Handset

1. When talking through the handset, press **UP** or **DOWN** key until the display shows the desired volume level.

Display:
RECEIVER: HIGH
↕
RECEIVER: MIDDLE
↕
RECEIVER: LOW

• **Note:** The volume reverts to MIDDLE each time you replace the handset.

5.3. Ringer

1. Press the **UP** or **DOWN** key. (Make sure **SPEAKER** key has not been pressed, the handset is not lifted, and a document is not loaded in the feeder.)

Display:
RINGER: HIGH
↕
RINGER: MIDDLE
↕
RINGER: LOW
↕
RINGER OFF: OK?

• The ringer will ring once at the selected level, then the date and time will reappear in the display.

2. If you selected RINGER OFF: OK?, press **START/ MEMORY** key.

[2] Diagnostics and service soft switch

1. Operating procedure

1.1. Entering the diagnostic mode

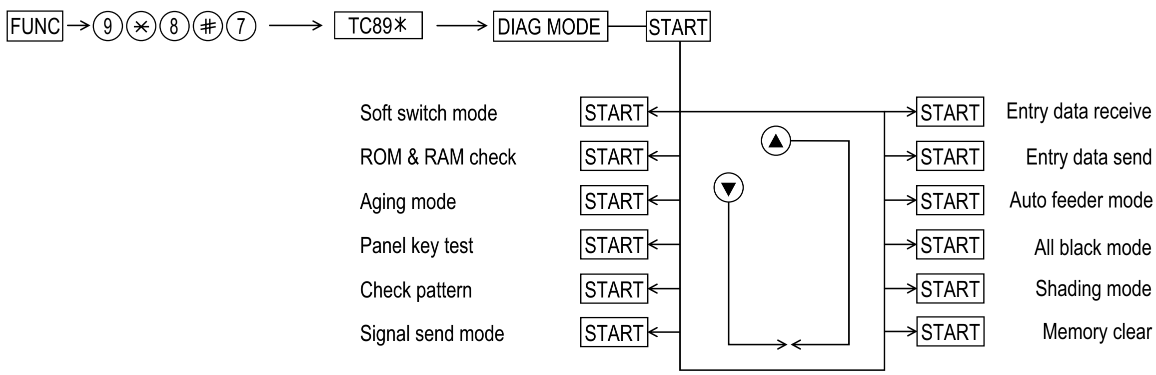
Press [FUNC] → [9] → [*] → [8] → [#] → [7] , and the following display will appear.

[ROM Ver. TC89*] After 2 sec: [DIAG MODE]

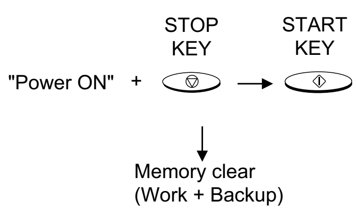
TC89*

Then press the [START] key. Select the desired item with the [*] key or the [#] key or select with the rapid key. Enter the mode with the START key.

(Diag· specifications)



If the diag mode cannot be set, repeat the diag mode operation, performing the following operation.
After the power is turned on and "WAIT A MOMENT" is indicated, press the STOP key.



In relation with the process response (request from Production Engineering) "WAIT A MOMENT" clock indication may appear depending on STOP key timing. If the STOP key is held down, "MEMORY CLEAR?" appears.

2. Diagnostic items

ITEM No.	Contents	Function
1	SOFT SWITCH MODE	Soft switches are displayed and changed. List can be output.
2	ROM & RAM CHECK	ROM is sum-checked, and RAM is matched. Result list is output.
3	AGING MODE	10 sheets of check patterns are output every 5 minutes per sheet.
4	PANEL KEY TEST	Panel keys are tested. Result list is output.
5	CHECK PATTERN	Check pattern is output.
6	SIGNAL SEND MODE	Various signals of FAX communication are output.
7	MEMORY CLEAR	Back-up memory is cleared, and is set at delivery.
8	SHADING MODE	Shading compensation is performed in this mode.
9	ALL BLACK PRINT	To check the print head, whole dots are printed over the interval of 2 m.
10	AUTO FEEDER MODE	Insertion and discharge of document are tested.
11	ENTRY DATA SEND	Registered content is sent.
12	ENTRY DATA RECEIVE	Registered content is received, and its list is output.

3. Diagnostic items description

3.1. Soft switch mode

Used to change the soft switch settings.

The soft switch which is stored internally is set by using the keys.

The available soft switches are SW-A1 to SW-O6.

The content of soft switches is shown in page 2-5 to 2-18.

The contents are set to factory default settings.

3.2. ROM & RAM check

ROM executes the sum check, and RAM executes the matching test. The result will be notified with the number of short sounds of the buzzer as well as by printing the ROM & RAM check list.

Number of short sounds of buzzer:

0 → No error

1 → ROM error

2 → RAM error (4 Kbyte SRAM or 512 Kbyte DRAM)

3.3. Aging mode

If any document is present, copying will be executed sheet by sheet. If no document is present, the check pattern will be printed sheet by sheet. This operation will be executed at a rate of one sheet per 5 minutes, and will be ended at a total of 10 sheets.

3.4. Panel key test

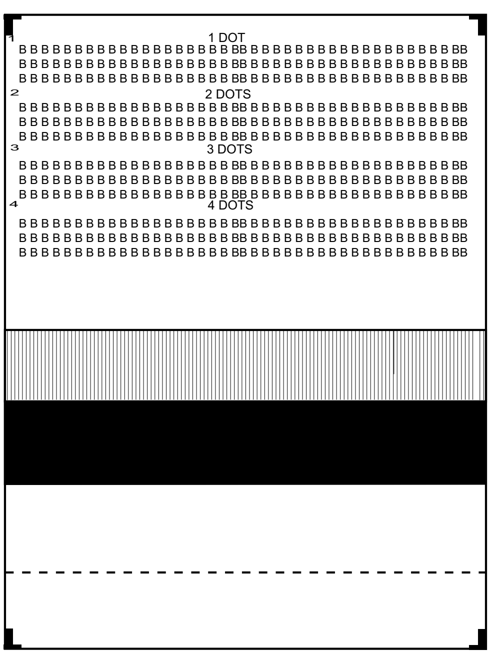
This mode is used to check whether each key operates properly. Press the key on the operation panel, and the key will be displayed on the display. Therefore, press all keys. At this time, finally press the STOP key.

When the STOP key is pressed, the keys which are not judged as "pressed" will be printed on the result list.

- LED part of the contact image sensor (CIS) is kept on during the term from when “START” of the panel test mode to end with the STOP key.

3.5. Check pattern

This mode is used to check the state of the printing head. It is ended with the following pattern printed on one printing sheet.



3.6. Signal send mode

This mode is used to send various signals to the circuit during FAX communication. Every push of START key sends a signal in the following sequence. Moreover, the signal sound is also output to the speaker when the line monitor of the soft switch is on.

[1] No signals

[2] 9600BPS (V.29)

[3] 7200BPS (V.29)

[4] 4800BPS (V27ter)

[5] 2400BPS (V27ter)

[6] 300BPS (FLAG)

[7] 2100Hz (CED)

[8] 1100Hz (CNG)

3.7. Memory clear

This mode is used to clear the backup memory and reset to the default settings.

3.8. Shading mode

The mode is used for the shading compensation. For reading, set up the special original paper.
The compensation memorizes the reference data of white and black for reading.
Moreover, the memorized data is not erased even if memory clear mode is executed.

3.9. All black print

This mode is used to check the state of the printing head and to intentionally overheat it. Whole dots are printed over the interval of 2 m. If it is overheated or the printing sheet is jammed, press STOP key for the end.

3.10. Auto feeder mode

In this mode, a document is inserted and discharged to check the auto feed function.

After this mode is started, set a document, and the document feed will be automatically tested.

3.11. Entry data send

This mode is used to send the registered data to another machine and make the other machine copy the registered content.

Before sending in this mode, it is necessary to set the other machine at the entry data receive mode.

The following, information will be sent to the remote machine:

1. Telephone list data
2. Sender register data
3. Optional setting content
4. Soft switch content
5. Junk fax number list
6. Recording setting list data

3.12. Entry data receive

In this mode, the registered data sent from the other machine is received and the received data is registered in the machine. When this mode is used for receiving, the other machine must be in the entry data send mode.

After receiving is completed, the following lists are printed.

1.Telephone list data

2.Sender register data (*)

3.Optional setting list (*)

4.Soft switch content

5.Junk fax number list (*)

6.Recording setting list data (*)

(*): Refer to SETUP LIST

4. How to make soft switch setting

To enter the soft switch mode, press the following key entries in sequence.

Press [FUNCTION] [9] [*] [8] [#] [7] [START] [START]

DATA No. 1 2 3 4 5 6 7 8

S F T SW-A1 = 0 0 0 0 0 0 0 0

Press [FUNCTION] key.

S F T SW-A1 = 1 0 0 0 0 0 0 0

Press [#] key.

S F T SW-A1 = 1 0 0 0 0 0 0 0

Press [*] key.

S F T SW-A1 = 1 0 0 0 0 0 0 0

Bit1 - 8 are set.

S F T SW-A1 = 1 0 0 0 0 0 0 0

Press [START] key during setting.

S F T SW-A2 = 0 0 0 0 0 0 0 0

Soft SW-A2 - SW-O6 are set.

S F T SW-O6 = 0 0 0 0 0 0 0 0

- To finish the settings halfway between SW-A1 and SW-O6, press the STOP key. In this case, the setting being done to the SW No. on display will be nullified while settings done to the preceding SW No. remain in effect.
- When the COPY key is pressed, the contents of soft switches are printed.

The soft switch mode is terminated.

5. Soft switch description

5.1. Soft switch

SW NO.	DATA NO.	ITEM	Switch setting and function						Initial setting		Remarks
			1			0			U		
SW I A1	1	Protect from echo	No			Yes			0		
	2	Forced 4800 BPS reception	Yes			No			0		
	3	Footer print	Yes			No			0		
	4	Length limitation of copy/send/ receive	No limit			Copy/send: 60 cm Receive: 1 m			0		
	5	CSI transmission	No transmitted			Transmitted			0		
	6	DIS receive acknowledgement during G3	Twice			NSF: Once DIS: Twice			0		
	7	Non-modulated carrier for V29 transmission modem	Yes			No			0		
	8	EOL detect timer	25s			13s			0		
SW I A2		Modem speed		V.29		V.27 ter					
				9600bps	7200bps	4800bps	2400bps				
	1		No. 1	0	0	0	0		0		
	2		No. 2	0	0	0	0		0		
	3		No. 3	0	1	1	0		0		
	4		No. 4	1	1	0	0		1		
	5	Sender's	No			Yes			0		
	6	H2 mode	No			Yes			0		
	7	Communication error treatment in TRN sending mode (reception)	No communication error			Communication error			0		
	8	CNG transmission	No			Yes			0		
SW I A3		CED tone signal interval		1000ms	750ms	500ms	75ms				
	1		No. 1	1	1	0	0		0		
	2		No. 2	1	0	1	0		0		
	3	MR coding	No			Yes			0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW I A4	1 2 3 4 5	Signal transmission level	Binary input No. = 16 8 4 2 1 1 2 3 4 5 0 1 0 0 0						0 1 0 0 0		
	6	Protocol monitor (Error print)	Printed at communication error			Not printed			0		
	7	Protocol monitor	Yes			No			0		
	8	Line monitor	Yes			No			0		
SW I A5		Digital line equalization setting (Reception)			7.2km		0km				
	1		No. 1		1		0		1		
	2		No. 2		1		0		1		
		Digital line equalization setting (Transmission)			7.2km		0km				
	3		No. 3		1		0		0		
	4		No. 4		1		0		0		
		Digital cable equalizer setting (Reception for Caller ID)			7.2km		0km				
	5		No. 5		1		0		0		
	6		No. 6		1		0		0		
	7	Error criterion	10 ~ 20 %			5 ~ 10 %			0		
	8	Anti junk fax check	Yes			No			1		

SW NO.	DATA NO.	ITEM	Switch setting and function 1	Switch setting and function 0	Initial setting U	Initial setting	Remarks
SW-A6	1	Reserved			0		
	2	End Buzzer	Yes	No	1		
	3	Disconnect the line when DIS is received in RX mode	No	Yes	1		
	4	Equalizer freeze control (MODEM)	On	Off	0		
	5	Equalizer freeze control 7200 BPS only	No	Yes	0		
	6	CNG transmission in manual TX mode	Yes	No	1		
	7	Initial compression scheme for sharp fax in TX mode	MR mode	H2 mode	0		
	8	Modem speed automatic fallback when RX level is under -40dBm	Yes	No	0		
SW-B1	1 2 3 4	Recall interval	Binary input No. = 8 4 2 1 1 2 3 4 0 1 0 1		0 1 0 1		
	5 6 7 8	Recall times	Binary input No. = 8 4 2 1 5 6 7 8 0 0 1 1		0 0 1 1		
SW-B2	1	Dial pausing (sec./pause)	4 sec.	2 sec.	0		
	2	Dial tone detection (before auto dial)	No	Yes	1		
	3	Reserved			0		
	4	Busy tone detection (after auto dial)	No	Yes	0		
	5 6	Waiting time after dialing	45 sec. / 55 sec. / 90 sec. / 140 sec. No. 5: 0 / 0 / 1 / 1 No. 6: 0 / 0 / 1 / 1		0 0		
	7	Reserved			0		
	8	Reserved			0		
SW-B3	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6 7	Auto dial mode delay timer of before line connect	0 sec. / 1.5 sec. / 3.0 sec. / 4.5 sec. No. 6: 0 / 0 / 1 / 1 No. 7: 0 / 1 / 0 / 1		0 0		
	8	Hold key	Enable	Disable	1		
SW-B4	1 2	Auto dial mode delay timer of after line connect	1.7 sec. / 3.0 sec. / 3.6 sec. / 4.0 sec. No. 1: 0 / 0 / 1 / 1 No. 2: 0 / 1 / 0 / 1		0 0		
	3	Dial mode	Tone	Pulse	1		OPTION
	4	Pulse → Tone change function by * key	Enable	Disable	1		
	5	Dial pulse make/break ratio (%)	40/60	33/67	1		
	6	Reserved			0		
	7	Reserved			0		
	8	Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal	Yes	No	1		

<table>
<tr><th rowspan="2">SW NO.</th><th rowspan="2">DATA NO.</th><th rowspan="2">ITEM</th><th colspan="6">Switch setting and function</th><th colspan="2">Initial setting</th><th rowspan="2">Remarks</th></tr>
<tr><th colspan="3">1</th><th colspan="3">0</th><th>U</th><th></th></tr>
<tr><td rowspan="4">SW
I
B5</td><td>1
2
3
4
5</td><td>DTMF signal transmission level (Low)</td><td colspan="6">Binary input
No. = 16 8 4 2 1
1 2 3 4 5
0 1 0 0 1</td><td>0
1
0
0
1</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="4">SW
I
B6</td><td>1
2
3
4
5</td><td>DTMF signal transmission level (High)</td><td colspan="6">Binary input
No. = 16 8 4 2 1
1 2 3 4 5
0 0 1 0 1</td><td>0
0
1
0
1</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="10">SW
I
C1</td><td rowspan="3">1
2</td><td rowspan="3">Reading slice (Binary)</td><td></td><td>Factory setting</td><td>Light</td><td>Dark</td><td>Darker in dark</td><td></td><td rowspan="3">0
0</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>No. 1</td><td>0</td><td>1</td><td>0</td><td>1</td><td></td></tr>
<tr><td>No. 2</td><td>0</td><td>0</td><td>1</td><td>1</td><td></td></tr>
<tr><td rowspan="3">3
4</td><td rowspan="3">Reading slice (Half tone)</td><td></td><td>Factory setting</td><td>Light</td><td>Dark</td><td>Darker in dark</td><td></td><td rowspan="3">0
0</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>No. 3</td><td>0</td><td>1</td><td>0</td><td>1</td><td></td></tr>
<tr><td>No. 4</td><td>0</td><td>0</td><td>1</td><td>1</td><td></td></tr>
<tr><td>5</td><td>Line density selection</td><td colspan="3">Fine</td><td colspan="3">Standard</td><td>0</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>MTF correction in half tone mode</td><td colspan="3">No</td><td colspan="3">Yes</td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="6">SW
I
D1</td><td>1
2
3
4</td><td>Number of rings for auto receive</td><td colspan="6">Binary input
No. = 8 4 2 1
1 2 3 4
0 1 0 0</td><td>0
1
0
0</td><td></td><td>OPTION</td></tr>
<tr><td>5</td><td>Automatic switching manual to auto receive mode</td><td colspan="3">Reception after 5 rings</td><td colspan="3">No reception</td><td>0</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="3">7
8</td><td rowspan="3">CI detect frequency</td><td></td><td>As PTT</td><td>11.5Hz</td><td>13.0Hz</td><td>20.0Hz</td><td></td><td rowspan="3">0
0</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>No. 7</td><td>0</td><td>0</td><td>1</td><td>1</td><td></td></tr>
<tr><td>No. 8</td><td>0</td><td>1</td><td>0</td><td>1</td><td></td></tr>
<tr><td rowspan="13">SW
I
D2</td><td rowspan="8">1
2
3</td><td rowspan="8">Distinctive ringing setting (PATTERN 4 and 5 are for CANADA only)</td><td colspan="2"></td><td>No. 1</td><td>No. 2</td><td>No. 3</td><td></td><td rowspan="8">0
0
0</td><td rowspan="8"></td><td rowspan="8">OPTION</td></tr>
<tr><td colspan="2">OFF</td><td>0</td><td>0</td><td>0</td><td></td></tr>
<tr><td colspan="2">STANDARD</td><td>0</td><td>0</td><td>1</td><td></td></tr>
<tr><td colspan="2">PATTERN1</td><td>0</td><td>1</td><td>0</td><td></td></tr>
<tr><td colspan="2">PATTERN2</td><td>0</td><td>1</td><td>1</td><td></td></tr>
<tr><td colspan="2">PATTERN3</td><td>1</td><td>0</td><td>0</td><td></td></tr>
<tr><td colspan="2">PATTERN4</td><td>1</td><td>0</td><td>1</td><td></td></tr>
<tr><td colspan="2">PATTERN5</td><td>1</td><td>1</td><td>0</td><td></td></tr>
<tr><td>4</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>5</td><td>Caller ID function</td><td colspan="3">Yes</td><td colspan="3">No</td><td>0</td><td></td><td>OPTION</td></tr>
<tr><td>6</td><td>Caller ID detect during CI off</td><td colspan="3">All times</td><td colspan="3">Only first</td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
</table>

<table>
<tr><th rowspan="2">SW NO.</th><th rowspan="2">DATA NO.</th><th rowspan="2">ITEM</th><th colspan="6">Switch setting and function</th><th colspan="2">Initial setting</th><th rowspan="2">Remarks</th></tr>
<tr><th colspan="3">1</th><th colspan="3">0</th><th>U</th><th></th></tr>
<tr><td rowspan="4">SW
I
D3</td><td>1
2
3
4
5</td><td>CI off detection timer (0-1550ms setting by 50ms step)</td><td colspan="6">Binary input
No. = 16 8 4 2 1
1 2 3 4 5
0 1 1 1 0</td><td>0
1
1
1
0</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="8">SW
I
E1</td><td>1</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>2</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>3</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>4</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>5</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="8">SW
I
E2</td><td>1</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>2</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>3</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>4</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>5</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="8">SW
I
E3</td><td>1</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>2</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>3</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>4</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>5</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="6">SW
I
F1</td><td rowspan="3">1
2</td><td rowspan="3">DTMF detection time</td><td></td><td>50ms</td><td>80ms</td><td>100ms</td><td>120ms</td><td></td><td rowspan="3">0
0</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>No. 1</td><td>0</td><td>0</td><td>1</td><td>1</td><td></td></tr>
<tr><td>No. 2</td><td>0</td><td>1</td><td>0</td><td>1</td><td></td></tr>
<tr><td>3</td><td>Protection of remote reception
(5 ∗∗) detect</td><td colspan="3">Yes</td><td colspan="3">No</td><td>1</td><td></td><td></td></tr>
<tr><td>4</td><td>Remote reception with GE telephone</td><td colspan="3">Compatible</td><td colspan="3">Not compatible</td><td>1</td><td></td><td></td></tr>
<tr><td>5
6
7
8</td><td>Remote operation code figure by external TEL (0~9)</td><td colspan="6">Binary input
No. = 8 4 2 1
5 6 7 8
0 1 0 1</td><td>0
1
0
1</td><td></td><td></td></tr>
<tr><td rowspan="9">SW
I
F2</td><td>1</td><td>CNG detection in STAND-BY mode</td><td colspan="3">Yes</td><td colspan="3">No</td><td>1</td><td></td><td>OPTION</td></tr>
<tr><td>2</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>3</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td rowspan="3">4
5</td><td rowspan="3">Number of CNG detect (STAND-BY mode)</td><td></td><td>1pulse</td><td>2pulses</td><td>3pulses</td><td>4pulses</td><td></td><td rowspan="3">0
1</td><td rowspan="3"></td><td rowspan="3"></td></tr>
<tr><td>No. 4</td><td>0</td><td>0</td><td>1</td><td>1</td><td></td></tr>
<tr><td>No. 5</td><td>0</td><td>1</td><td>0</td><td>1</td><td></td></tr>
<tr><td>6</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>7</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
<tr><td>8</td><td>Reserved</td><td colspan="3"></td><td colspan="3"></td><td>0</td><td></td><td></td></tr>
</table>

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting		Remarks
			1	0	U		
SW I G1	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I G2	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I G3	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I H1	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I H2	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I I1	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I I2	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		

SW NO.	DATA NO.	ITEM	Switch setting and function						Initial setting		Remarks
			1			0			U		
SW I I3	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW I I4	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW I I5	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW I I6	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW I I7	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW I J1	1	Reserved							0		
	2	Reserved							0		
	3	Sender’s phone number setting	Cannot change			Change allowed			0		
	4	Reserved							0		
	5	Reserved							0		
	6	Summer time setting	No			Yes			1		OPTION
		Ringer volume		Off	Low	Middle	High				OPTION
	7		No. 7	0	0	1	1		1		
	8		No. 8	0	1	0	1		0		
SW I J2		Speaker volume (3 stages)		Low	Low	Middle	High				OPTION
	1		No. 1	0	0	1	1		1		
	2		No. 2	0	1	0	1		0		
	3	Reserved							0		
		Handset receiver volume		Low	Low	Middle	High				OPTION
	4		No. 4	0	0	1	1		1		
	5		No. 5	0	1	0	1		0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		

SW NO.	DATA NO.	ITEM	Switch setting and function						Initial setting		Remarks
			1			0			U		
SW-J3	1	Reserved							0		
		Communication results printout (Transaction report)		E/T/M	Send only	Always	No print	Err only			OPTION
	2		No. 2	0	0	0	0	1	1		
	3		No.3	0	0	1	1	0	0		
	4		No. 4	0	1	0	1	0	0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW-K1	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW-L1	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Cut off mode (COPY mode)	Yes			No			1		OPTION
	6	A4 paper enable	Enable			Disable			0		
	7	LEGAL & LETTER paper enable	Enable			Disable			1		
	8	Reserved							0		
SW-L2		Paper set size			LETTER	LEGAL	A4				OPTION
	1		No. 1		0	0	1		0		
	2		No. 2		0	1	0		0		
	3	Automatic reduce of receive	Auto			100 %			1		OPTION
		Print contrast		Normal	Lighter	Light	Dark	Darker			OPTION
	4		No. 4	0	0	0	0	1	1		
	5		No. 5	0	0	1	1	0	0		
	6		No. 6	0	1	0	1	0	0		
	7	Reception reduction ratio in case of memory full	100 %			93 %			0		
	8	Reserved							0		
SW-M1	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW-M2	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		
SW-N1	1	Reserved							0		
	2	Reserved							0		
	3	Reserved							0		
	4	Reserved							0		
	5	Reserved							0		
	6	Reserved							0		
	7	Reserved							0		
	8	Reserved							0		

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting		Remarks
			1	0	C		
SW I N2	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I N3	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I O1	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I O2	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I O3	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I O4	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		
SW I O5	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		

SW NO.	DATA NO.	ITEM	Switch setting and function		Initial setting		Remarks
			1	0	C		
SW I O6	1	Reserved			0		
	2	Reserved			0		
	3	Reserved			0		
	4	Reserved			0		
	5	Reserved			0		
	6	Reserved			0		
	7	Reserved			0		
	8	Reserved			0		

5.2. Soft switch function description

SW-A1 No. 1 Protect from echo

Used to protect from echo in reception.

SW-A1 No. 2 Forced 4800BPS reception

When line conditions warrant that receptions take place at 4800 BPS repeatedly.

It may improve the success of receptions by setting at 4800BPS.

This improves the receiving document quality and reduces handshake time due to fallback during training.

SW-A1 No. 3 Footer print

When set to "1", the date of reception, the sender machine No., and the page No. are automatically recorded at the end of reception.

SW-A1 No. 4 Length limitation of copy/send/receive

Used to set the maximum page length.

To avoid possible paper jam, the page length is normally limited to 0.6 meter for copy or transmit, and 1 meters for receive.

It is possible to set it to "No limit" to transmit a long document, such as a computer print form, etc. (In this case, the receiver must also be set to no limit.)

SW-A1 No. 5 CSI transmission

(CSI TRANSMISSION) is a switch to set whether the machine sends or does not send the signal (CSI signal) informing its own telephone No. to the remote fax machine when information is received. When "nonsending" is set, the telephone No. is not output on the remote transmitting machine if the remote transmitting machine has the function to display or print the telephone No. of receiving machine, using this CSI signal.

SW-A1 No. 6 DIS receive acknowledgment during G3 transmission

Used to make a choice of whether reception of DIS (NSF) is acknowledged after receiving two DISs (NSFs) or receiving one DIS (two NSFs).

It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 7 Non-modulated carrier for V29 transmission modem

Though transmission of a non-modulated carrier is not required for transmission by the V29 modem according to the CCITT recommendation, it may be permitted to a send non-modulated carrier before the image signal to avoid an echo suppression problem. It may be useful for overseas communication to avoid an echo suppression problem, if set to 1.

SW-A1 No. 8 EOL (End Of Line) detect timer

Used to make a choice of whether to use the 25-second or 13-second timer for detection of EOL.

This is effective to override communication failures with some facsimile models that have longer EOL detection.

SW-A2 No. 1 ~ No. 4 Modem speed

Used to set the initial modem speed. The default is 9600BPS.

It may be necessary to program it to a slower speed when frequent line fallback is encountered, in order to save the time required for fallback procedure.

SW-A2 No. 5 Sender's information transmit

(SENDER'S INFORMATION TRANSMISSION) is a switch to set the function to print the content of HEADER PRINT described in the passcode list at the front end of receiver's original when original is sent to the remote machine.

If this switch is set to "NO", the HEADER PRINT is not output at the receiving machine.

SW-A2 No. 6 H2 mode

Used to determine reception of H2 mode (15 sec transmission mode). When set to OFF, H2 mode reception is inhibited even though the transmitting machine has H2 mode function.

SW-A2 No. 7 Communication error treatment in RTN sending mode (Reception)

Used to determine communication error treatment when RTN is sent by occurrence of a received image error in G3 reception. When it is set to "1", communication error is judged as no error.

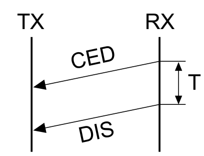
SW-A2 No. 8 CNG transmission

When set to "0", this model allows CNG transmission by pressing the Start key in the key pad dialing mode. When set to "1", CNG transmission in the key pad dialing mode cannot be performed. In either case. CNG transmission can be performed in the auto dial mode.

SW-A3 No. 1, No. 2 CED tone signal interval

For international communication, the 2100Hz CED tone may act as an echo suppression switch, causing a communication problem.

Though SW-A3 No. 1 and No. 2 are normally set to 0, this setting is used to change the time between the CED tone signal to eliminate the communication caused by echo.



SW-A3 No. 3 MR Coding

MR Coding is enable.

SW-A3 No. 4 ~ No. 8 Reserved

Set to "0".

SW-A4 No. 1 ~ No. 5 Signal transmission level

Used to control the signal transmission level in the range of-0dB to-31dB.

SW-A4 No. 6 Protocol monitor (Error print)

If set to "1", protocol is printed at communication error.

SW-A4 No. 7 Protocol monitor

Normally set to "0". If set to "1", communication can be checked, in case of trouble, without using a G3 tester or other tools.

When communication FSK data transmission or reception is made, the data is taken into the buffer. When communication is finished, the data is analyzed and printed out. When data is received with the line monitor (SW-A4 No. 8) set to "1" the reception level is also printed out.

SW-A4 No. 8 Line monitor

Normally set to "0". If set to "1", the transmission speed and the reception level are displayed on the LCD. Used for line tests.

SW-A5 No. 1, No. 2 Digital line equalization setting (Reception)

Line equalization when reception is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 3, No. 4 Digital line equalization setting (Transmission)

Line equalization when transmitter is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 5, No. 6 Digital cable equalizer setting (Reception for Caller ID)

Line equalization when reception for CALLER ID is to be set according to the line characteristics.

Setting should be made according to distance between the telephone and the telephone company central switching station.

SW-A5 No. 7 Error criterion

Used to select error criterion for sending back RTN when receiving image data.

SW-A5 No. 8 Anti junk fax check

When using the Anti junk fax function, set to "1".

SW-A6 No. 1 Reserved

Set to "0".

SW-A6 No. 2 End buzzer

Setting this bit to 0 will disable the end buzzer (including the error buzzer/on-hook buzzer).

SW-A6 No. 3 Disconnect the line when DIS is received in RX mode

Bit1= 0: When DIS signal is received during RX mode, the line is disconnected immediately.

Bit1= 1: When DIS signal is received during RX mode, the line is disconnected on the next tone.

SW-A6 No. 4 Equalizer freeze control (MODEM)

This switch is used to perform reception operation by fixing the equalizer control of modem for the line which is always in an unfavorable state and picture cannot be received.

* Usually, the control is executed according to the state of line where the equalizer setting is changed always.

SW-A6 No. 5 Equalizer freeze control 7200BPS only

Setting which specifies SW-A3 No. 6 control only in the condition of 7200BPS modem speed.

SW-A6 No. 6 CNG transmission in manual TX mode

When set to "1", fax transmit the CNG signal in case of manual transmission mode (User press the START key after waiting for the fax answering signal from handset or speaker).

SW-A6 No. 7 Initial compression scheme for sharp fax in TX mode

When set to "0", if the other fax is Sharp model, fax transmit the document by H2 mode. When set to "1", even if the other fax is Sharp model, fax transmits the document by MR mode.

SW-A6 No. 8 Modem speed automatic fallback when RX level is under -40dBm

When set to "1", if fax signal level is under -40dBm during reception, machine selects the slower modem speed automatically.

It is effective when noises occur on the received document due to the long distance communications.

SW-B1 No. 1 ~ No. 4 Recall interval

Choice is made for a redial interval for speed and rapid dial calls.

Use a binary number to program this. If set to 0 accidentally, 1 will be assumed.

SW-B1 No. 5 ~ No. 8 Recall times

Choice is made as to how many redials there should be.

SW-B2 No. 1 Dialing pause (sec/pause)

Pauses can be inserted between telephone numbers of direct dial connection. Selection of 4 sec or 2 sec pause is available.

SW-B2 No. 2 Dial tone detection (before auto dial)

Used to set YES/NO of dial tone detection in auto dialing.

SW-B2 No. 3 Reserved

Set to "0".

SW-B2 No. 4 Busy tone detection (after auto dial)

Used to set busy tone detection in auto dialing.

SW-B2 No. 5, No. 6 Waiting time after dialing

This is time waiting for the opponent's signals after dialing.

SW-B2 No. 7, No. 8 Reserved

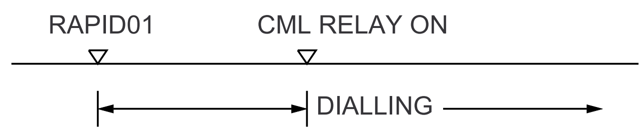
Set to "0".

SW-B3 No. 1 ~ No. 5 Reserved

Set to "0".

SW-B3 No. 6, No. 7 Auto dial mode Delay timer of before line connect

Delay time between the dial key input and line connection under the auto dial mode.



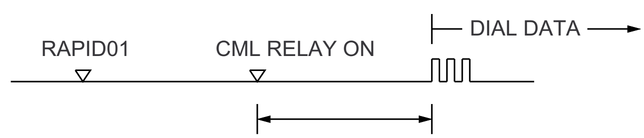
No.6	No.7	
0	0	0sec
0	1	1.5sec
1	0	3.0sec
1	1	4.5sec

SW-B3 No. 8 Hold key

Used to set YES/NO of holding function by the Hold key.

SW-B4 No. 1, No. 2 Auto dial mode Delay timer of after line connect

Delay time between the line connection and dial data output under the auto dial mode.



No.1	No.2	
0	0	1.7sec
0	1	3.0sec
1	0	3.6sec
1	1	4.0sec

SW-B4 No. 3 Dial mode

When using the pulse dial, set to 1. When using the tone dial, set to 0.

SW-B4 No. 4 Pulse → Tone change function by ⋊ key

When setting to 1, the mode is changed by pressing the ⋊ key from the pulse dial mode to the tone dial mode.

SW-B4 No. 5 Dial pulse make/break ratio (%)

When using the 33% make ratio pulse dial, set to "0".

When using the 40% make ratio pulse dial, set to "1".

SW-B4 No. 6, No. 7 Reserved

Set to "0".

SW-B4 No. 8 Recalling fixed only one time when dialing was unsuccessful without detecting busy tone signal

When dialing results in failure since the busy tone cannot be detected, recalling is fixed to one time.

Supplementary explanation

If time-out termination is made when dialing, only single recall is possible even if the setting time of recalls (SW-B1 No. 5 - No. 8) has been set to some times. This soft switch is added in order to meet FCC.

SW-B5 No. 1 ~ No. 5 DTMF signal transmission level (Low)

The transmission level of DTMF signal is adjusted. (lower frequency)

00000: 0dBm

↓

11111: -15.5 dBm (-0.5dBm x 31)

SW-B5 No. 6 ~ No. 8 Reserved

Set to "0".

SW-B6 No. 1 ~ No. 5 DTMF signal transmission level (High)

The transmission level of DTMF signal is adjusted. (higher frequency)

00000: 0dBm

↓

11111: -15.5 dBm (-0.5dBm x 31)

SW-B6 No. 6 ~ No. 8 Reserved

Set to "0".

SW-C1 No. 1, No. 2 Reading slice (Binary)

Used to determine the set value of reading density in standard/fine mode. The standard setting is "00" (Factory setting is "00")

SW-C1 No. 3, No. 4 Reading slice (Half tone)

Used to determine the set value of reading density in half tone mode.

The standard setting is "00" (Factory setting is "00")

SW-C1 No. 5 Line density selection

Used to set the transmission mode which is automatically selected when the Resolution key is not pressed. In the copy mode, however, the fine mode is automatically selected unless the Resolution key is manually set to another mode.

SW-C1 No. 6 Reserved

Set to "0".

SW-C1 No. 7 MTF correction in half tone mode

This allows selection of MTF correction (dimness correction) in the half tone mode.

When "NO" (=1) is selected, the whole image becomes soft and mild.

Clearness of characters will be reduced. Normally set to "YES" (=0).

SW-C1 No. 8 Reserved

Set to "0".

SW-D1 No. 1 ~ No. 4 Number of rings for auto receive

When the machine is set in the auto receive mode, the number of rings before answering can be selected. It may be set from one to four rings using a binary number. Since the facsimile telephone could be used as an ordinary telephone if the handset is taken off the hook, it should be programmed to the user's choice. If the soft switch was set to 1, direct connection is made to the facsimile. If a facsimile calling beep was heard when the handset is taken off the hook, press the START key and put the handset on the hook to have the facsimile start receiving. If it was set to 0 accidentally, receive ring is set to 1.

NOTE: If the machine is set to answer after a large number of rings, it may not be able to receive faxes successfully. If you have difficulty receiving faxes, reduce the number of rings to a maximum of 6.

SW-D1 No. 5 Automatic switching manual to auto receive mode

This soft switch is used to select whether the machine should switch to the auto receive mode after 5 rings in the manual receive mode or remain in the same way as SW-D1 No. 1, No. 2, No. 3 and No. 4 "0"1"0"1"(5 rings).

SW-D1 No. 6 Reserved

Set to "0".

SW-D1 No. 7, No. 8 CI detect frequency

Detection frequency of ring signal for auto reception is set.
When set to No. 6=0, No. 7=0, frequency is set to PTT recommendation.
When set to No. 6=0, No. 7=1, frequency is set to 11.5Hz or more.
When set to No. 6=1, No. 7=0, frequency is set to 13.0Hz or more.
When set to No. 6=1, No. 7=1, frequency is set to 20.0Hz or more.

SW-D2 No. 1 ~ No. 3 Distinctive ringing setting (PATTERN 4 and 5 are for CANADA only)

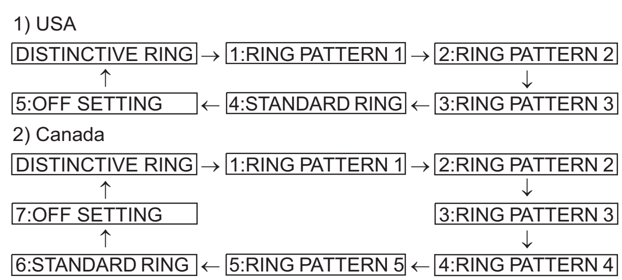
This function allows reception of services offered by USA and Canada telephone companies in which the customer contracts with the telephone company to have up to 4 telephone numbers (USA) or 6 telephone numbers (Canada) established for one line.

Each telephone number is signaled by a different ringing pattern, and the customer can allocate each number to a specific use.

<Example of use>

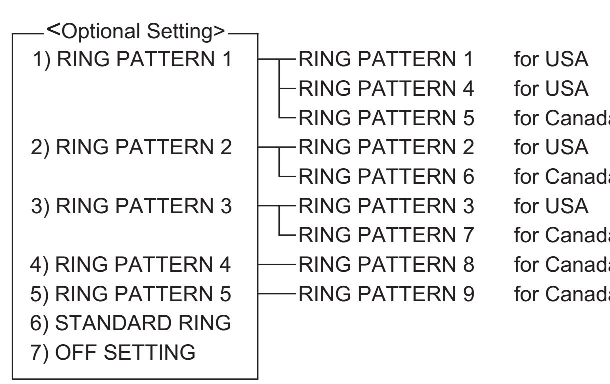
	Phone Number	Intended Purpose	Ring Pattern
Ring Pattern	555-1234	Voice Calls	Standard
	555-1235	Facsimile Calls	Pattern 1
	555-1236	Answering	Pattern 2
	555-1237	PC Modem	Pattern 3

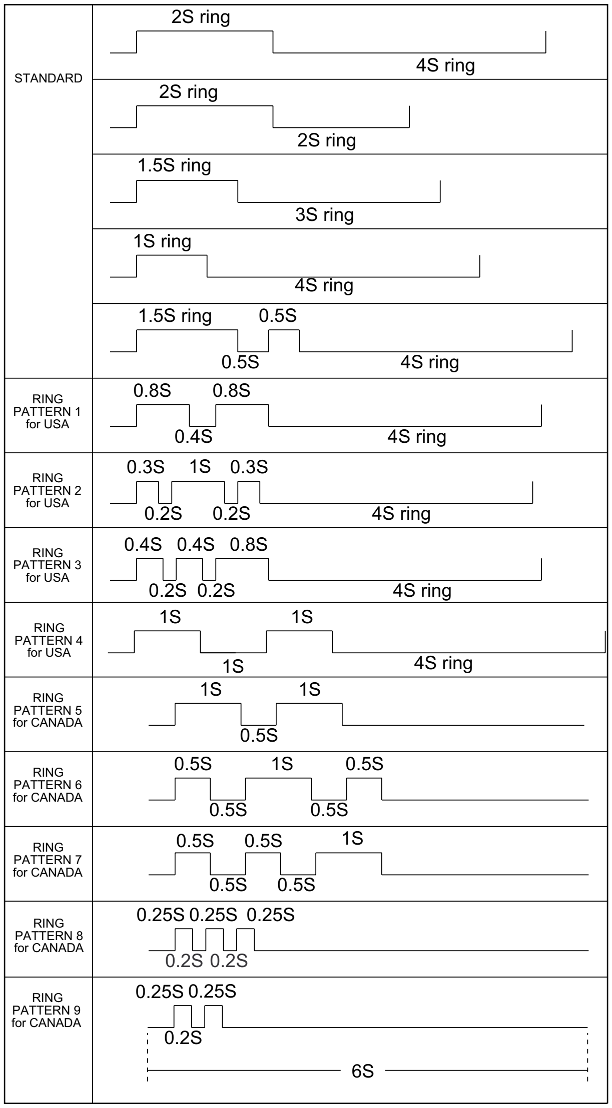
<Distinctive Ringing Timing Specifications>



- Ring Pattern

  STANDARD has 5 ring patterns, and DISTINCTIVE has 9 patterns, Ring Patterns 1~4 for USA, and 5~9 for Canada. However, to make the setting procedure as easy as possible for the user to understand these patterns are grounded as follows:





SW-D2 No. 4 Reserved

Set to "0".

SW-D2 No. 5 Caller ID function

Used for Caller ID function.

SW-D2 No. 6 Caller ID detect during CI off

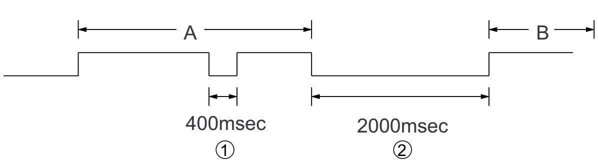
Detection of caller ID signal is performed as follows:
0:First CI OFF only
1:All of CI OFF

SW-D2 No. 7, No. 8 Reserved

Set to "0".

SW-D3 No. 1 ~ No. 5 CI off detection timer (0-1550ms setting by 50ms step)

Set the minimum time period of CI signal interruption which affords to be judged as a CI OFF section with 50ms steps.
(Example).



01110 (50ms ~ 14):

700ms (CI interruption>700ms:Judged as a CI OFF section)
The section 1 is not judged as a CI OFF section, the CI signal A is counted as one signal.
The section 2 is judged as a CI OFF section, the CI signal B is considered as the second signal.

00111 (50ms ~ 7):

350ms (CI interruption>350ms:Judged as a CI OFF section)
The section 1 is judged as a CI OFF section, and the CI signal A is counted as two signals.
The section 2 is judged as a CI OFF section, and the CI signal B is considered as the third signal.

SW-D3 No. 6 ~ No. 8 Reserved

Set to "0".

SW-E1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-E2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-E3 No. 1 ~ No. 8 Reserved

Set to "0".

SW-F1 No. 1, No. 2 DTMF detect time

Used to set detect time of DTMF (Dual Tone Multi Frequency) used in remote reception (5 ∗∗).
The longer the detect time is, the less the error detection is caused by noises.

SW-F1 No. 3 Protection of remote reception (5 ∗∗) detect

Used to set the function of remote reception (5 ∗∗). When set to "1", the remote reception function is disabled.

SW-F1 No. 4 Remote reception with GE telephone

(Corresponding to TEL mode by GE) P. B. X.

"1": Compatible with TEL mode by GE

"0": Not compatible

- When sending (5 ∗∗) for remote reception with a GE manufactured telephone remote reception may not take place because of special specifications in their DTMF. To overcome this, a soft SW is provided to change the modem setting to allow for remote reception.
- If this soft SW is set to "1", other telephone sets may be adversely affected.

SW-F1 No. 5 ~ No. 8 Remote operation code figure by external TEL (0 ~ 9)

Remote operation codes can be changed from 0 through 9. If set to greater than 9, it defaults to 9. The "5 ∗∗" is not changed.
Ex-7 ∗∗ (Default: 5 ∗∗)

SW-F2 No. 1 CNG detection in STAND-BY mode

When setting to "1", the CNG signal detection function during stand-by stops.

SW-F2 No. 2, No. 3 Reserved

Set to "0".

SW-F2 No. 4, No. 5 Number of CNG detect (STAND-BY mode)

Used for detection of CNG in 1 to 4 pulses.

SW-F2 No. 6 ~ No. 8 Reserved

Set to "0".

SW-G1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-G2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-G3 No. 1 ~ No. 8 Reserved

Set to "0".

SW-H1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-H2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I3 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I4 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I5 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I6 No. 1 ~ No. 8 Reserved

Set to "0".

SW-I7 No. 1 ~ No. 8 Reserved

Set to "0".

SW-J1 No. 1, No. 2 Reserved

Set to "0".

SW-J1 No. 3 Sender's phone number setting

Used to make a choice of whether the registered sender's phone number can be changed or not. If the switch is set to "1", new registration of the sender's phone number is disabled to prevent accidental wrong input.

SW-J1 No. 4, No. 5 Reserved

Set to "0".

SW-J1 No. 6 Summer time setting

This is used to set YES/NO of automatic clock adjustment for European Summer time.

SW-J1 No. 7, No. 8 Ringer volume

Used to adjust ringing volume.

SW-J2 No. 1, No. 2 Speaker volume (3 stages)

Used to adjust sound volume from a speaker.

SW-J2 No. 3 Reserved

Set to "0".

SW-J2 No. 4, No. 5 Handset receiver volume

Used to adjust sound volume from a handset receiver volume.

SW-J2 No. 6 ~ No. 8 Reserved

Set to "0".

SW-J3 No. 1 Reserved

Set to "0".

SW-J3 No. 2 ~ No. 4 Communication result printout (Transaction report)

Every communication, the result can be output. As usual, it is set to print the timer sending communication error alone. If No. 2: 0 No. 3: 1 No. 4: 0 are set, printing is always on (printed even if it is normally ended).

000: Error, timer and memory sending/receiving

001: Sending

010: Continuous printing

011: Not printed

100: Communication error

SW-J3 No. 5 ~ No. 8 Reserved

Set to "0".

SW-K1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-L1 No. 1 ~ No. 4 Reserved

Set to "0".

SW-L1 No. 5 Cut off mode (COPY mode)

Whether the excessive part is printed on the next recording paper or discarded is selected to copy a document which is longer than the recording paper.

SW-L1 No. 6 A4 Paper enable

The use of recording paper of A4 is enabled.

SW-L1 No. 7 LEGAL and LETTER paper enable

The use of recording paper of LEGAL and LETTER is enabled.

SW-L1 No. 8 Reserved

Set to "0".

SW-L2 No. 1, No.2 Paper set size

At present size of the recording paper.

SW-L2 No. 3 Automatic reduce of receive

If set to 1, it is reduced automatically when receiving.

SW-L2 No. 4 ~ No. 6 Print contrast

Used for adjustment of print contrast.

SW-L2 No. 7 Reception reduction ratio in case of memory full

This model is designed so that the print is started according to the setting of SW-L2 No. 3 when reception of one page is completed. However, if the memory is filled with data before completion of reception of one page, the print is started with the reduction ratio which is set with this switch.

SW-L2 No. 8 Reserved

Set to "0".

SW-M1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-M2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-N1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-N2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-N3 No. 1 ~ No. 8 Reserved

Set to "0".

SW-O1 No. 1 ~ No. 8 Reserved

Set to "0".

SW-O2 No. 1 ~ No. 8 Reserved

Set to "0".

SW-O3 No. 1 ~ No. 8 Reserved

Set to "0".

SW-O4 No. 1 ~ No. 8 Reserved

Set to "0".

SW-O5 No. 1 ~ No. 8 Reserved

Set to "0".

SW-O6 No. 1 ~ No. 8 Reserved

Set to "0".

[3] Troubleshooting

Refer to the following actions to troubleshoot any of the problems mentioned in 1-4.

[1] A communication error occurs.

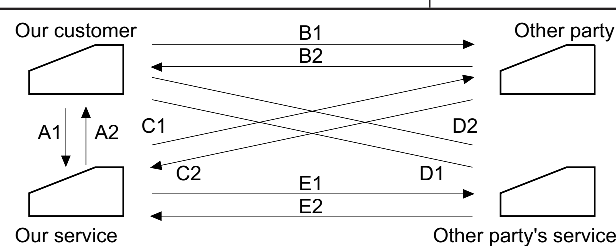
[2] Image distortion produced.

[3] Unable to do overseas communication.

[4] Communication speed slow due to FALLBACK.

- In crease the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [1] [2] [3].
- Decrease the transmission level SOFT SWITCH A4-1, 2, 3, 4, 5. May be used in case [3].
- Apply line equalization SOFT SWITCH A2-1, 2, 3, 4. May be used in case [1] [2] [3] [4].
- Slow down the transmission speed SOFT SWITCH A2-1, 2, 3, 4. May be used in case [2] [3].
- Replace the TEL/LIU PWB. May be used in all cases.
- Replace the control PWB. May be used in all cases.
- If transmission problems still exist on the machine, use the following format and check the related matters.

TO:	ATT:	Ref.No. :
CC:	ATT:	Date :
FM:		Dept :
		Sign :

***** Facsimile communication problem *****				Ref.No.:
From: Mr.		Fax Tel No.:		Date:
Our customer	Name			Tel No.
	Address			Fax No.
	Contact person			Model name
Other party	Name			Tel No.
	Address			Fax No.
	Contact person			Model name
Problem mode	Line: Domestic / international	Model: G3		Phase: A, B, C, D.
	Reception / Transmission	Automatic reception / Manual reception		
		Automatic dialing / Manual dialing / Others		
Frequency:		%	ROM version:	
Confirmation item				Please mark problem with an X. No problem is: 0.
Comment				
Countermeasure				
**** Please attach the G3 data and activity report on problem. ****				

A1	A2	B1	B2	C1	C2	D1	D2	E1	E2

Transmission level setting is ( ) dB at our customer

Transmission level ( ) dBm
Reception level ( ) dBm
By level meter at B1 and B2

* Please complete this report before calling the "TAC" hotline if problem still occurs.

[4] Error code table

1. Communication error code table

1.1. G3 Transmission

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSF, DIS	Cannot recognize DCS signal by echo etc. Cannot recognize NSS signal (FIF code etc)
2	CFR	Disconnects line during reception (carrier missing etc)
3	FTT	Disconnects line by fall back
4	MCF	Disconnects line during reception of multi page Cannot recognize NSS, DCS signal in the case of mode change
5	PIP or PIN	The line is hung up without replying to telephone request from the receiving party.
6	RTN or RTP	Cannot recognize NSS, DCS signal after transmit RTN or RTP signal.
7	No signal or DCN	No response in receiver side or DCN signal received* (transmitter side)
8	-	Owing to error in some page the error could not be corrected although the specified number of error retransmissions were attempted.
11	-	Error occurred after or while reception by the remote (receiving) machine was revealed to be impossible.
12	-	Error occurred just after fallback.
13	-	Error occurred after a response to retransmission end command was received.

1.2. G3 Reception

Code	Final received signal	Error Condition (Receiver side)
0	Incomplete signal frame	Cannot recognize bit stream after flag
1	NSS, DCS	Cannot recognize CFR or FTT signal Disconnects line during transmission (line error)
2	NSC, DTC	Cannot recognize NSS signal (FIF code etc)
3	EOP	Cannot recognize MCF, PIP, PIN, RTN, RTP signal
4	EOM	Cannot recognize MCF, PIP, PIN, RTN, RTP signal in the case of mode change
5	MPS	The line is hung up without replying to communication request.
6	PR1-Q	Cannot recognize PIP, PIN signal in the case of TALK request
7	No signal or DCN	No response in transmitter (cannot recognize DIS signal) or DCN signal received* (receiver side)
8	-	Error occurred upon completion of reception of all pages.
9	-	Error occurred when mode was changed or Transmission/Reception switching was performed.
10	-	Error occurred during partial page or physical page reception.
11	-	Error occurred after or during inquiry from the remote (transmitting) machine as to whether reception is possible or not.
12	-	Error occurred during or just after fallback.
13	-	Error occurred after the retransmission end command was received.

CHAPTER 3. MECHANISM BLOCKS

[1] General description

1. Document feed block and diagram

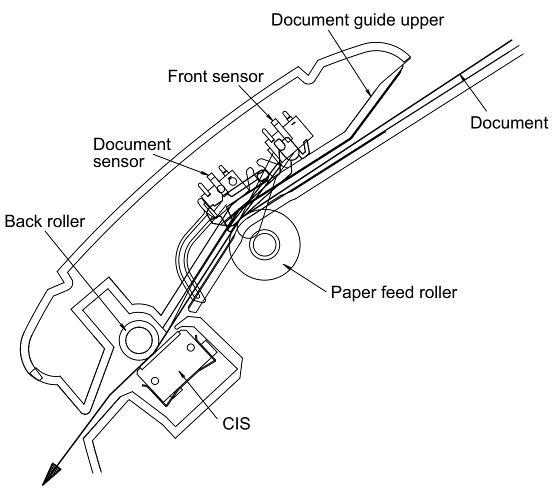


Fig. 1

2. Document feed operation

1) The original, which is set in the document hopper, feeds automatically when the front sensor is activated. This in turn activates the pulse motor which drives the document supply roller. The document stops when the lead edge is detected by the document sensor.
2) The lead edge of the original is fed a specified number of pulses after the lead edge of the document is detected for the reading process to begin.
3) The trailing edge of the original is fed a specific number of pulses after the trailing edge of the document deactivates the document sensor. The read process then stops and the original is discharged.
4) When the front sensor is in the OFF state (any document is not set up in the hopper guide), the drive will be stopped when the document is discharged.

3. Hopper mechanism

3.1. General view

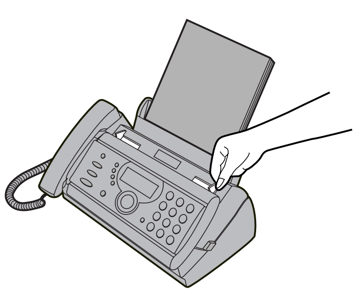


Fig. 2

The hopper section contains document guides that are used to adjust the hopper to the width of the original document. This ensures that the original feeds straight into the fax machine for scanning.

Document width: 148 mm to 216 mm (A5 longitudinal size to Letter longitudinal size)

NOTE: Adjust the document guide after setting up the document.

3.2. Automatic document feed

1) Use of the paper feed roller and separate plate ensures error-free transport and separation of documents. The plate spring presses the document to the paper feed roller to assure smooth feeding of the document.
2) Document separation method: Separate plate

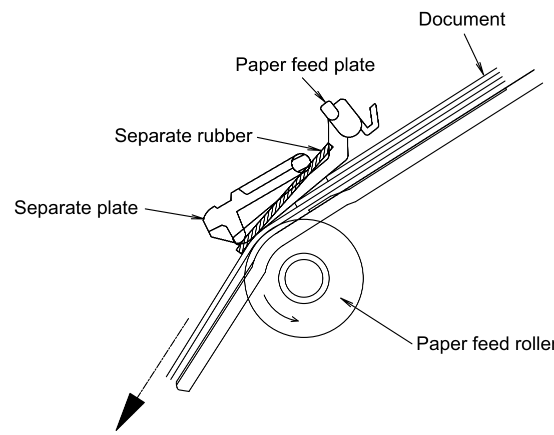


Fig. 3

3.3. Documents applicable for automatic feed

	10 sheets	1sheet(Manual)
Paper weight	70 kg 80 g/m2	70 kg ~ 135 kg 52 g/m2 ~ 157g/m2
Paper thickness (ref.)	0.1 mm	0.1 mm ~ 0.18mm
Paper size	LGL (216 mm x 355.6 mm) A4 (210 mm x 297 mm) LTR (216 mm x 279 mm)	
Feeder capacity	A4/LTR: 10 sheets LGL : 1 sheet	

NOTE: Double-side coated documents and documents on facsimile recording paper should be inserted manually. The document feed quantity may be changed according to the document thickness.

Documents corresponding to a paper weight heavier than 70 kg (80 g/m2) and lighter than 135 kg (157 g/m2) are acceptable for manual feed.

Documents heavier than 135 kg (157 g/m2) in terms of the paper weight must be duplicated on a copier to make it operative in the facsimile.

3.4. Loading the documents

1. Make sure that the documents are of suitable size and thickness, and free from creases, folds, curls, wet glue, wet ink, clips, staples and pins.
2. Place documents face down in the hopper.
   i) Adjust the document guides to the document size.
   ii) Align the top edge of documents and gently place them into the hopper. The first page under the stack will be taken up by the feed roller to get ready for transmission.

NOTE: 1) Curled edge of documents, if any, must be straightened out.
2) Do not load the documents of different sizes and/or thicknesses together.

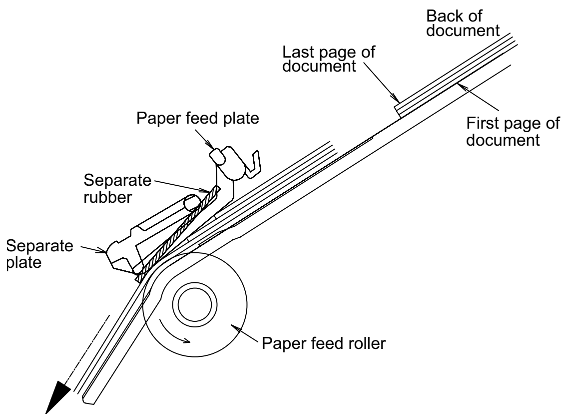


Fig. 4

3.5. Documents requiring use of the copy

1) Documents smaller than 148mm (W) x 140mm (L).
2) Documents thinner than the thickness of 0.06mm.
3) Documents containing creases, folds, or curls, especially those whose surface is curled (maximum allowable curl is 5mm).
4) Documents containing tears.
5) Carbon-backed documents. (Insert a white sheet of paper between the carbon back and the document carrier to avoid transfer of carbon to the carrier.)
6) Documents containing an easily separable writing material (e.g., those written with a lead pencil).
7) Transparent documents.
8) Folded or glued documents.

4. Document release

4.1. General

To correct a jammed document or to clean the document running surface, pull the insertion side of document center of the operation panel. To open the upper document guide, the operation panel must be opened first.

5. Recording block

5.1. Driving

In the drive mechanism, the rotating force of the pulse motor for both transmission and reception is transmitted to the paper supply roller, the recording paper feed roller and imaging film drive gear through the pulse motor axle gear, reduction gear and planetary gear.

5.2. Recording

This equipment employs the thermal transcription system which uses the thermal head imaging film.

5.2.1 Thermal head

The thermal head is composed of 2,016 heating elements in traverse line, and the resolution power is 8 dots/mm. The maximum speed is 10 ms/line.

5.2.2 Structure of recording mechanism

Recording is achieved by applying a suitable pressure to the thermal head through the imaging film of the recording paper feed roller and the recording paper.

The main scanning is electronically performed, and the sub-scanning is mechanically performed (by sending the recording paper with the recording paper feed roller).

5.2.3 Recording paper transfer sequence

1) The recording paper stored in the paper tray ass'y is fed with the PU roller, and is stopped when the P-IN sensor is turned on by sensing its lead edge.
2) Hereafter, the imaging film and recording paper are transferred with the recording paper feed roller, and thermal transcription is performed on the recording paper.
3) After thermal transcription, the imaging film is taken up by the roller on the take-up side, and the recording paper is discharged by the back roller.

   Troubleshooting the density unevenness mainly results from the longitudinal misalignment of the thermal head to the heater line. Otherwise, the head is in uneven contact with the recording paper feed roller, or the imaging film is wrinkled.

   The following items are described as the simplified checking method.

   a) Are the power and signal cables of the thermal head suitably treated?
   b) Does the same symptom appear even if the thermal head pressure spring is replaced?
   c) Is the feed roller of the recording paper concentric? (Density is uneven at intervals.)
   d) Does the same symptom appear even if the thermal head is replaced?
   e) Is the imaging film stained or wrinkled?

5.3. General view

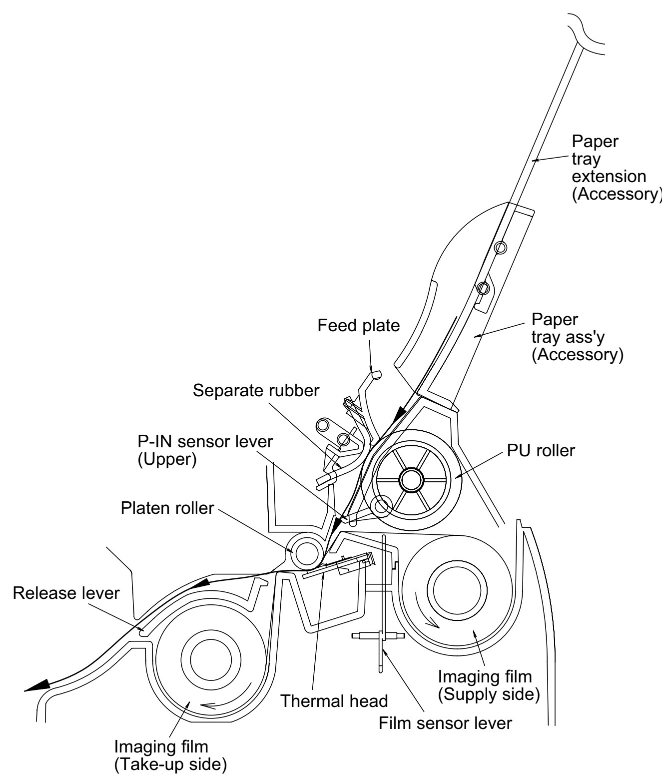


Fig. 5

[2] Disassembly and assembly procedures

- This chapter mainly describes the disassembly procedures. For the assembly procedures, reverse the disassembly procedures.
- Easy and simple disassembly/assembly procedures of some parts and units are omitted. For disassembly and assembly of such parts and units, refer to the Parts List.
- The numbers in the illustration, the parts list and the flowchart in a same section are common to each other.
- To assure reliability of the product, the disassembly and the assembly procedures should be performed carefully and deliberately.

1	Bottom plate, PWB's and drive unit

Parts list (Fig. 1)

No.	Part name	Qty	No.	Part name	Qty
1	Mechanism uni	1	9	Connector	1
2	Screw (3x10)	5	10	TEL/LIU PWB unit	1
3	Screw	1	11	Connector	6
4	AC cord earth cable	1	12	Screw (3x10)	1
5	Bottom plate	1	13	Hook	1
6	Hook	1	14	Control PWB unit	1
7	Connector	1	15	Wire holder PWB	1
8	Power supply PWB unit	1	16	Screw (3x10)	2
			17	Drive unit	1

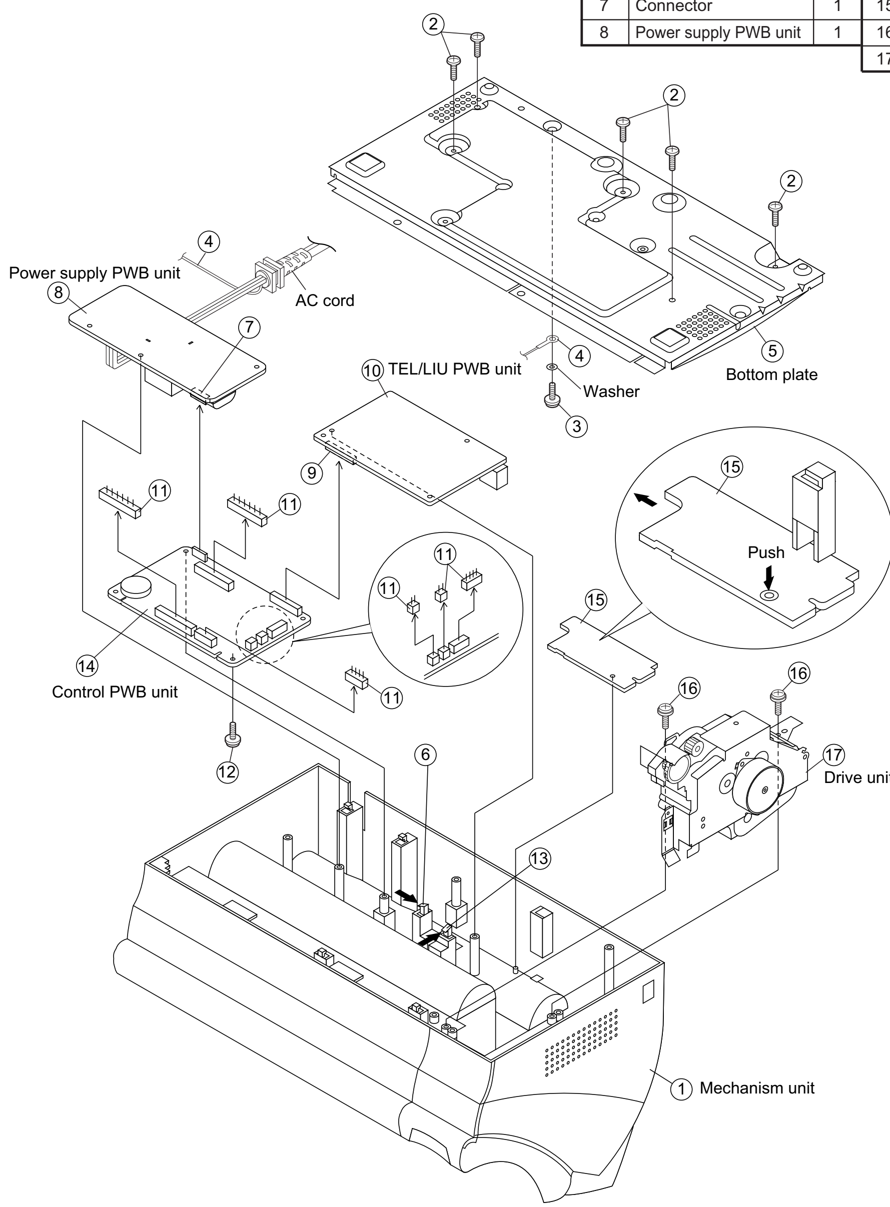


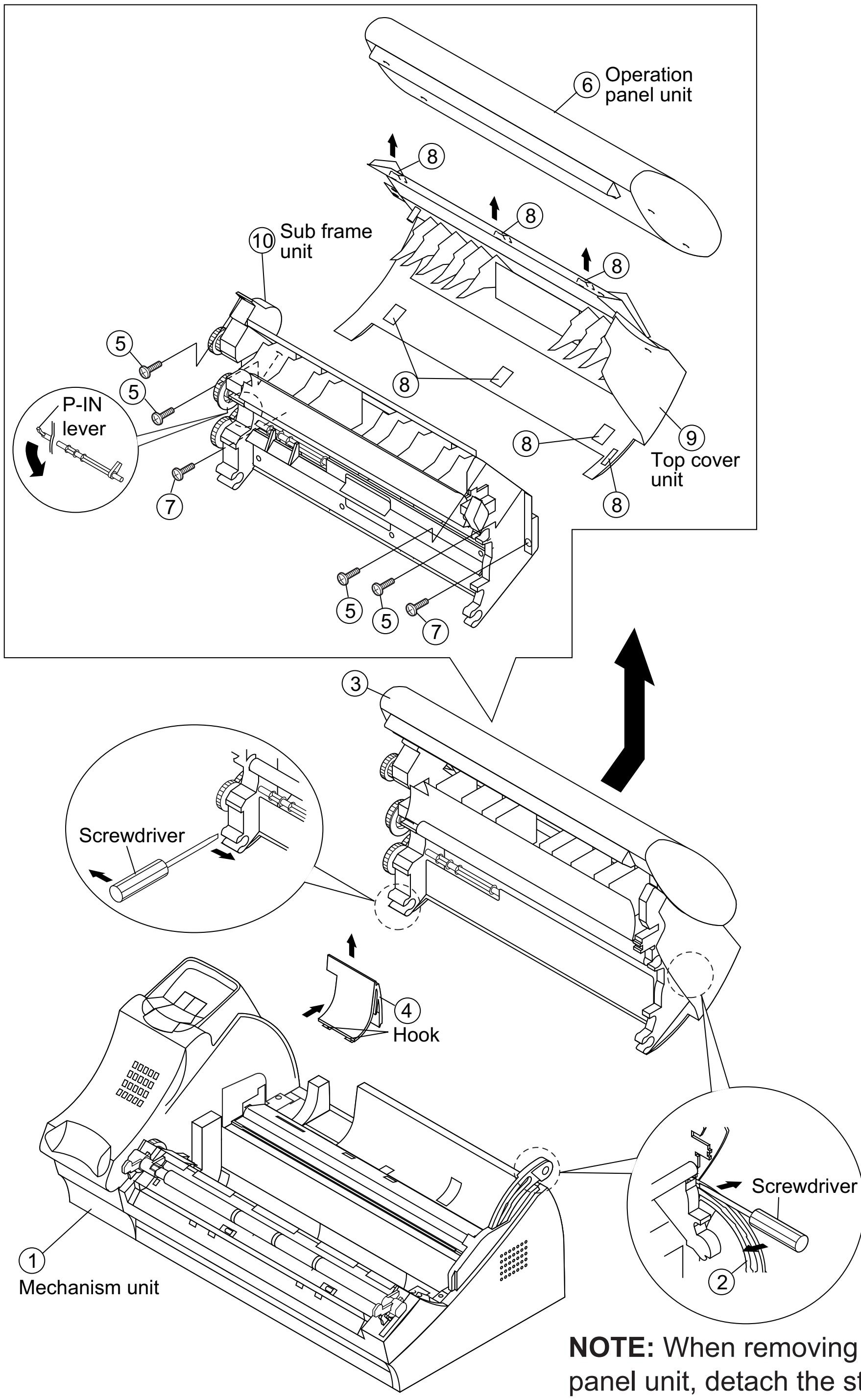
Fig. 1

2	Operation panel unit, top cover unit and sub frame unit

NOTE: For disassembly of the inside of the unit, refer to the exploded view in the parts guide.

Parts list (Fig. 2)

No.	Part name	Qty	No.	Part name	Qty
1	Mechanism unit	1	5	Screw (3x12)	4
2	Stopper plate	1	6	Operation panel unit	1
3	Operation panel unit/ top cover unit/ sub frame unit	1	7	Screw (3x10)	2
			8	Hook	7
4	Panel cable cover	1	9	Top cover unit	1
			10	Sub frame unit	1



NOTE: When removing the operation panel unit, detach the stopper plate at first.

Fig. 2

3	CIS unit and thermal head unit

NOTE: For disassembly of the inside of the unit, refer to the exploded view in the parts guide.

Parts list (Fig. 3)

No.	Part name	Qty	No.	Part name	Qty
1	Mechanism unit	1	4	Head cover	1
2	Screw (3x10)	1	5	Thermal head unit	1
3	CIS unit	1			

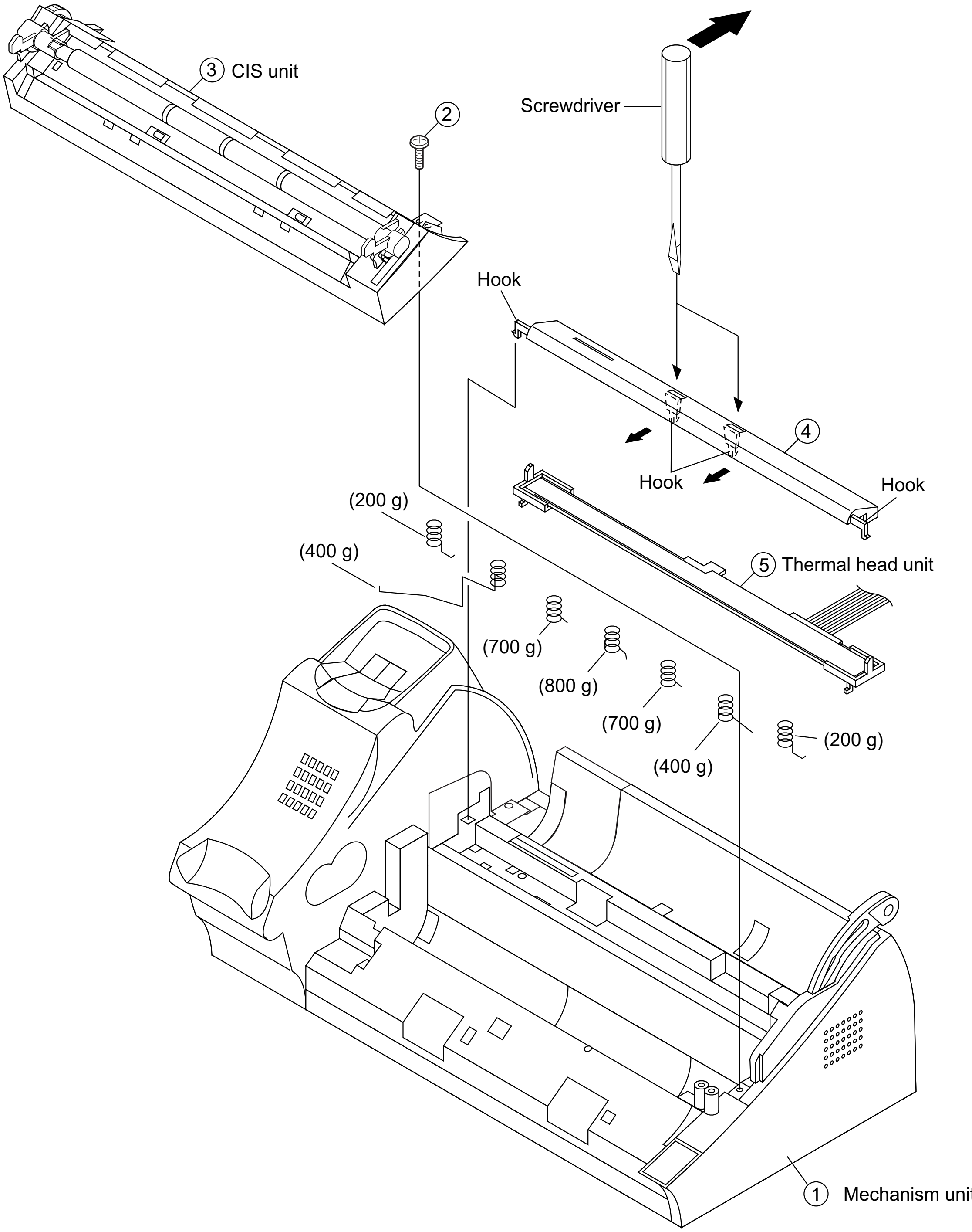


Fig. 3

4	**Wire treatment**

Parts list (Fig. 4)

No.	Part name	Qty
1	Screw (4x6)	1
2	Band (100mm)	2

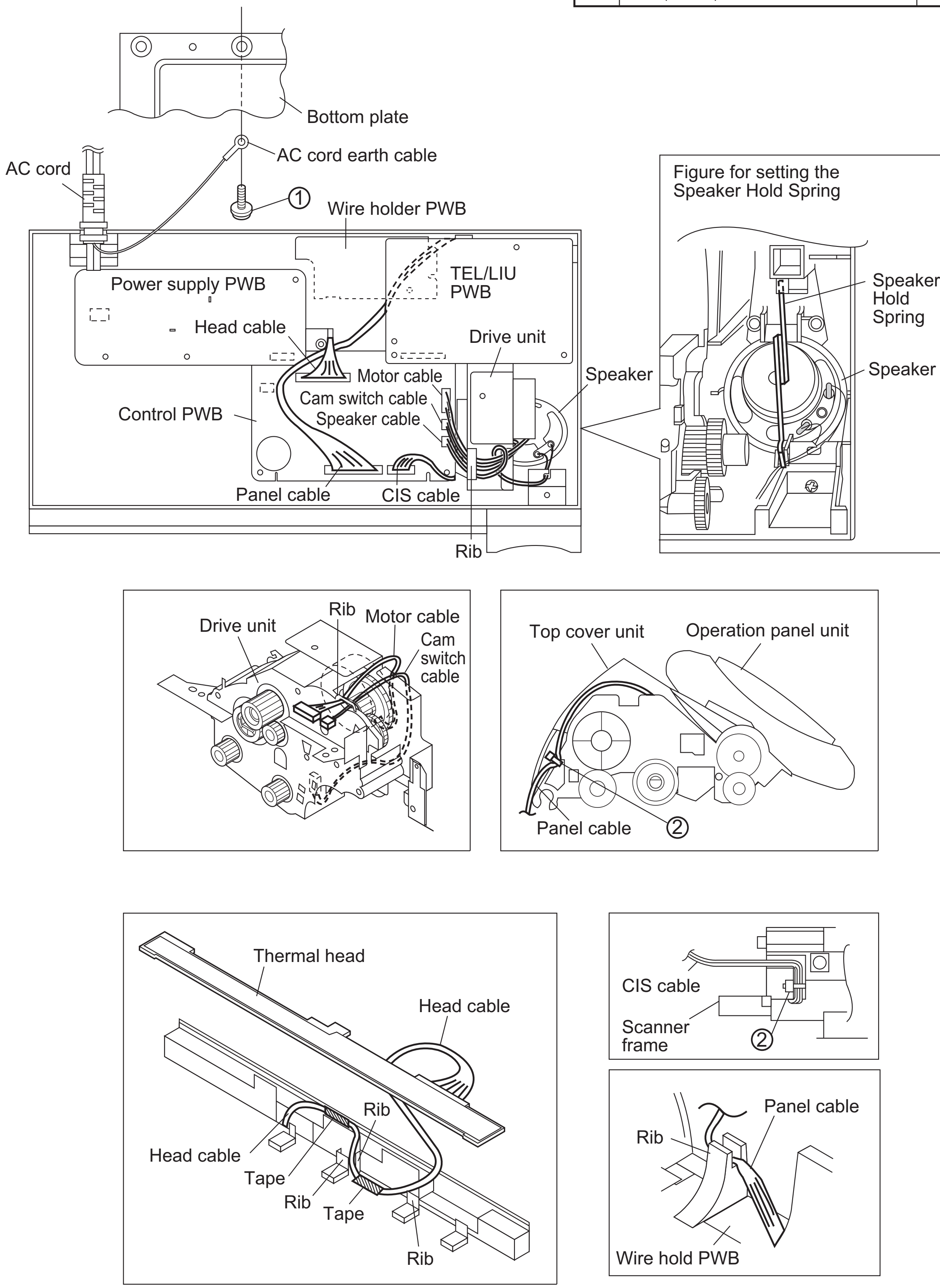
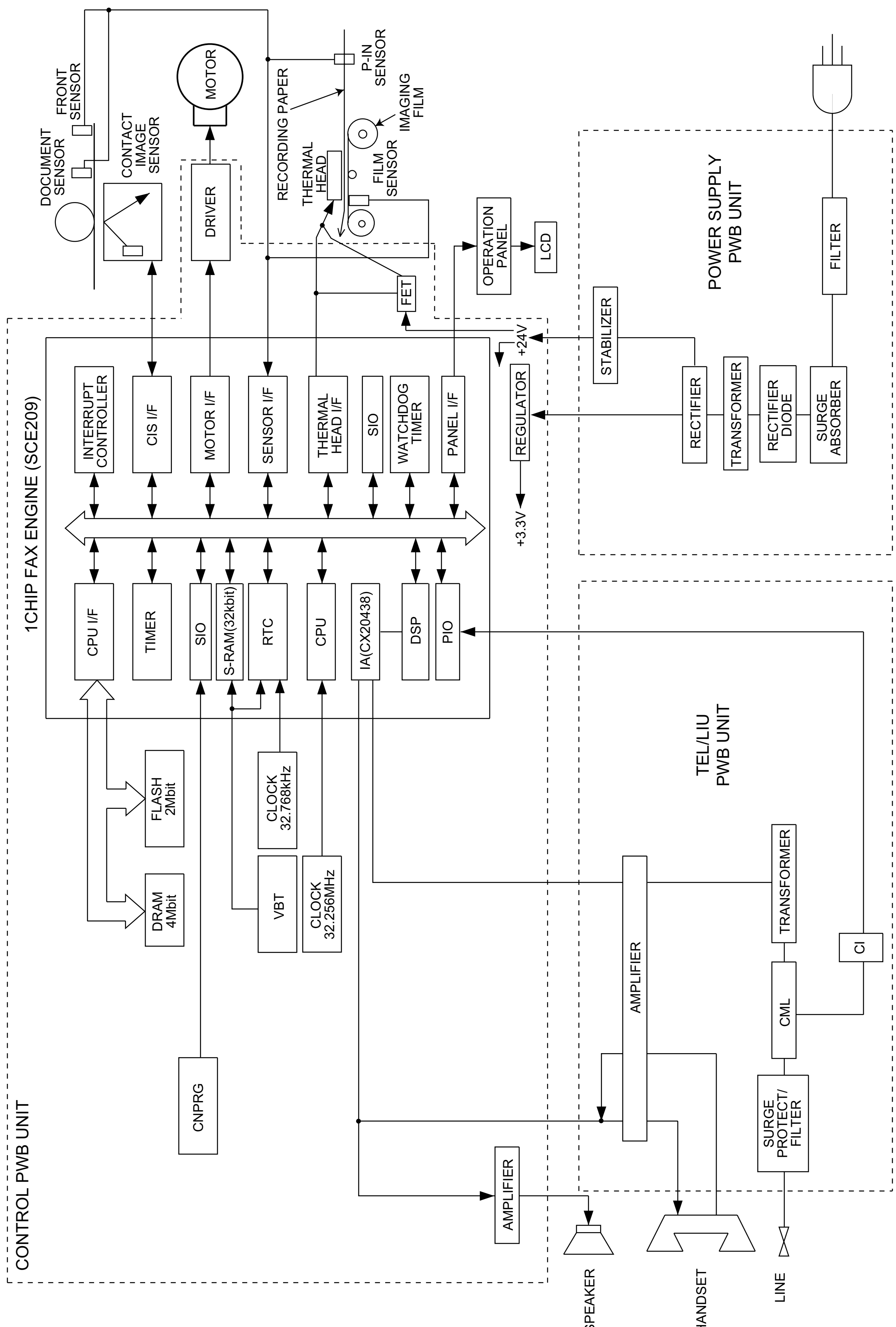


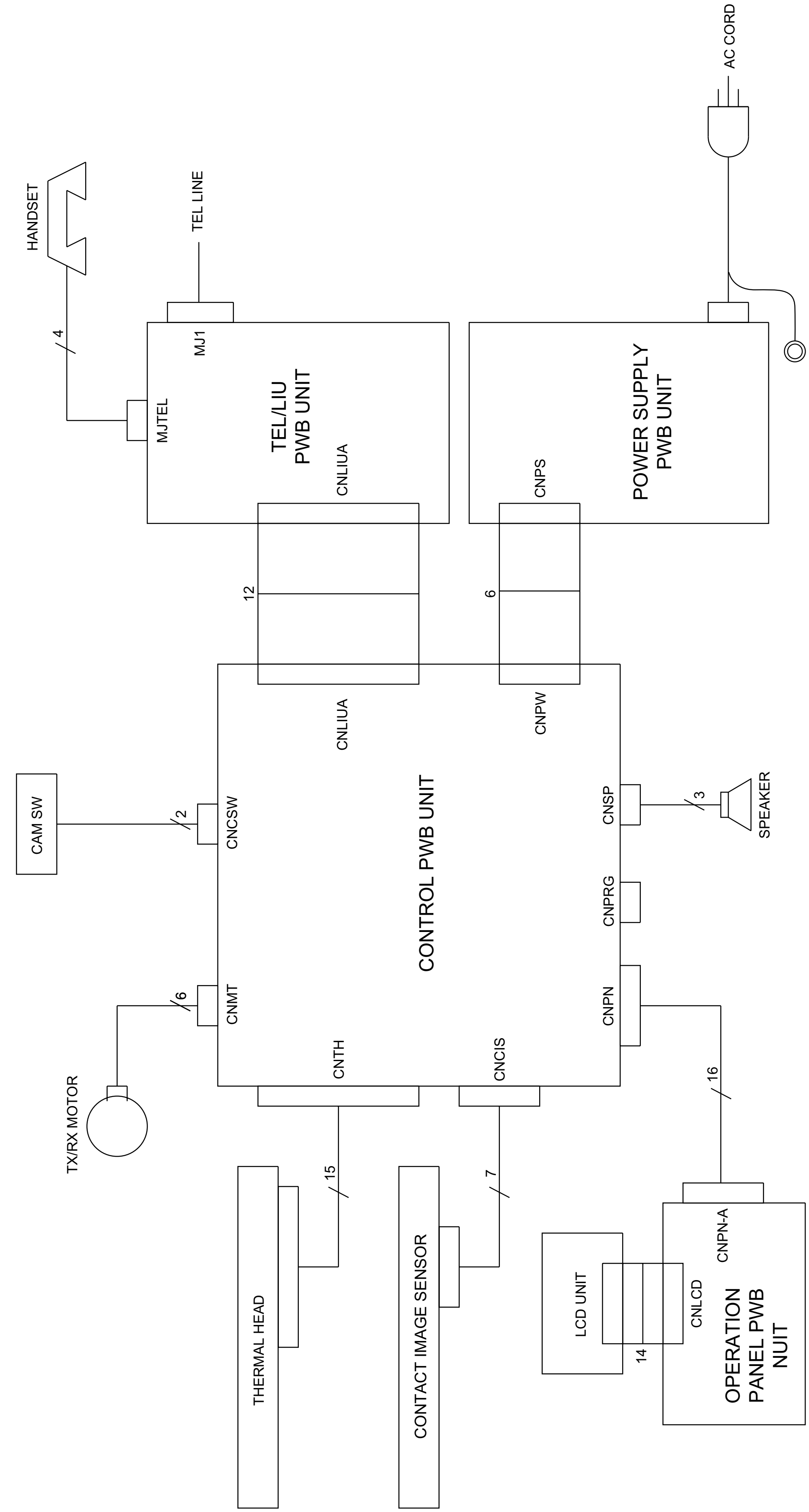
Fig. 4

CHAPTER 4. DIADRAMS

[1] Block diagram



[2] Wiring diagram



[3] Point-to-point diagram

CONTROL PWB

TX/RX MOTOR ↔ CNMT

TX/RX MOTOR	Pin	CNMT Pin	CNMT
TPBD-	1	1	TPBD-
TPAD-	2	2	TPAD-
TPBD	3	3	TPBD
TPAD	4	4	TPAD
VMT	5	5	VMT
VMT	6	6	VMT

THERMAL HEAD ↔ CNTH

THERMAL HEAD	Pin	CNTH Pin	CNTH
VTH	1		
VTH	2	1	VTH
STRB1-	3	2	STRB1-
STRB2-	4	3	STRB2-
THI	5	4	THI
RANK	6	5	RANK
THG	7	6	THG
THG	8	7	THG
THG	9	8	THG
THVDD	10	9	THVDD
STRB3-	11	10	STRB3-
STRB4-	12	11	STRB4-
LATCH-	13	12	LATCH-
PCLK	14	13	PCLK
DATA	15	14	DATA
VTH	16	15	VTH

OPERATION PANEL PWB (CNPN-A) ↔ CNPN

CNPN-A	Pin	CNPN Pin	CNPN
KEN4A	1	1	KEN4A
KEN3A	2	2	KEN3A
KEN2A	3	3	KEN2A
KEN1A	4	4	KEN1A
DG	5	5	DG
+3.3V	6	6	+3.3V
ORGSNS-	7	7	ORGSNS-
FRSNS-	8	8	FRSNS-
E	9	9	E
SEN0	10	10	SEN0
SEN1	11	11	SEN1
SEN2	12	12	SEN2
SEN3	13	13	SEN3
SEN4	14	14	SEN4
SEN5	15	15	SEN5
SEN6	16	16	SEN6

CIS ↔ CNCIS

CIS	Pin	CNCIS Pin	CNCIS
VO	1	1	VO
VG	2	2	VG
CISVDD	3	3	CISVDD
øT	4	4	øT
CISCLK	5	5	CISCLK
GLED	6	6	GLED
+24V	7	7	+24V

CNLIUA ↔ TEL/LIU PWB (CNLIUA)

CNLIUA	Pin	CNLIUA Pin	TEL/LIU PWB
RHS-	1	1	RHS-
MAG	2	2	DG
+24VL	3	3	+24VL
MICMUTE	4	4	MICMUTE
TELIN	5	5	TELIN
TELMUTE	6	6	TELMUTE
RXIN	7	7	RXIN
TXOUT	8	8	TXOUT
CML	9	9	CML
PIN	10	10	PIN
FILM	11	11	FILM
CI-	12	12	CI-

CNPRG

CNPRG	Pin
FLTXD	1
DG	2
FLRXD	3

CNPW ↔ POWER SUPPLY PWB (CNPS)

CNPW	Pin	CNPS Pin	CNPS
+24V	1	1	+24V
+24V	2	2	+24V
MG	3	3	MG
MG	4	4	MG
DG	5	5	DG
+5V	6	6	VREG(+5V)

CNCSW ↔ CAM SWITCH

CNCSW	Pin	Pin	CAM SWITCH
CSW-	1	1	CSW-
DG	2	2	DG

CNSP ↔ SPEAKER

CNSP	Pin	Pin	SPEAKER
SP+	1	1	SP+
N.C.	2	2	N.C.
SP-	3	3	SP-

CHAPTER 5. CIRCUIT DESCRIPTION

[1] Circuit description

1. General description

The compact design of the control PWB is obtained by using CONEXANT fax engine in the main control section and high density printing of surface mounting parts. Each PWB is independent according to its function as shown in Fig. 1.

2. PWB configuration

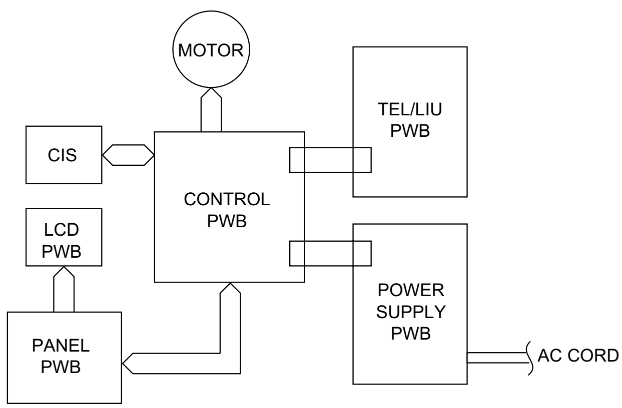


Fig. 1

2.1. Control PWB

The control PWB controls peripheral PWBs, mechanical parts, transmission, and performs overall control of the unit.

This machine employs a 1-chip modem (SCE209) which is installed on the control PWB.

2.2. TEL/LIU PWB

This PWB controls connection of the telephone line to the unit.

2.3. Power supply PWB

This PWB provides voltages of Vreg(+5V) and +24V to the other PWBs.

2.4. Panel PWB

The panel PWB allows input of the operation keys.

2.5. LCD PWB

This PWB controls the LCD display.

3. Operational description

Operational descriptions are given below:

- Transmission operation

  When a document is loaded in stand-by mode, the state of the document sensor is sensed via the 1 chip fax engine (SCE209). With depression of the START key in the off-hook state, transmission takes place. Then, the procedure is sent out from the modem and the motor is rotated to move the document down to the scan line. In the scan processor, the signal scanned by the CIS is sent to the internal image processor and the AD converter to convert the analog signal into binary data. This binary data is transferred from the scan processor to the image buffer within the RAM and encoded and stored in the transmit buffer of the RAM. The data is then converted from parallel to serial form by the modem where the serial data is modulated and sent onto the line.

- Receive operation

  There are two ways of starting reception, manual and automatic. Depression of the START key in the off-hook mode in the case of manual receive mode, or CI signal detection by the LIU in the automatic receive mode. First, the SCE209 controls the procedure signals from the modem to be ready to receive data. When the program goes into phase C, the serial data from the modem is converted to parallel form in the modem interface of the 1 chip fax engine (SCE209) which is stored in the receive buffer of the RAM. The data in the receive buffer is decoded software-wise to reproduce it as binary image data in the image buffer. The data is DMA transferred to the recording processor within the SCE209 which is then converted from parallel to serial form to be sent to the thermal head. The data is printed line by line by the SCE209 which is assigned to control the motor rotation and strobe signal.

- Copy operation

  To make a copy on this facsimile, the COPY key is pressed when the machine is in stand-by with a document on the document table and the telephone set is in the on-hook state. First, depression of the COPY key advances the document to the scan line. Similar to the transmitting operation, the image signal from the CIS is converted to a binary signal in the DMA mode via the 1 chip fax engine (SCE209) which is then sent to the image buffer of the RAM. Next, the data is transferred to the recording processor in the DMA mode to send the image data to the thermal head which is printed line by line. The copying takes place as the operation is repeated.

[2] Circuit description of control PWB

1. General description

Fig. 2 shows the functional blocks of the control PWB, which is composed of 3 blocks.

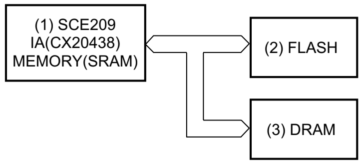


Fig. 2 Control PWB function block diagram

2. Description of each block

2.1. Main control block

The main control block is composed of CONEXANT 1 chip fax engine (SCE209), FLASH (2Mbit), DRAM (4Mbit).

Devices are connected to the bus to control the whole unit.

2.1.1 SCE209 (IC3): pin-176 QFP (FAX CONTROLLER)

1 chip fax engine has Internal Integrated Analog (20438) and Internal memory (SRAM: 32kbit).

2.1.2 SST39VF020P (IC1): pin-32 TSOP (FLASH)

FLASH of 2Mbit equipped with software for the main CPU.

2.1.3 IS41LV85125 (IC2): pin-28 SOJ (DRAM)

Image memory for recording process.

Memory for recording pixel data without paper.

2.2. IC3 (SCE209) Hardware description

2.2.1 Integrated Controller (SCC)

The Controller contains an internal MC24 Processor with a 16-MB address space and dedicated circuitry optimized for facsimile image processing and monitoring and for thermal or thermal transfer printer support.

The CPU provides fast instruction (up to 10 MHz clock speed) execution and memory efficient input/output bit manipulation. The CPU connects to other internal functions over an 8-bit data bus and 24-bit address bus and dedicated control lines.

The 24-bit external address bus, 8-bit data bus, control, status and decoded chip select signals support connection to external ROM, SRAM, DRAM, and FLASH memory.

2.2.2 DRAM Controller

The CX06835 includes a DRAM controller with signal and page mode access support which supports fast, normal, or slow refresh time. DRAM memory space is provided in one block up to 4 MB. A maximum of 4 MB of DRAM is supported. This space has a programmable size and starting address. Refresh is performed automatically and is supported in stand-by mode. CAS and RAS signal support is provided for one-DRAM banks for both 4-bit and 8-bit organizations. Access speeds from 50ns to 70ns can be supported.

2.2.3 DMA Channels

Six internal DMA channels support memory access for scanner, T.4/T.6, and resolution conversion. DMA Channel 2 can be reprogrammed for external access to thermal printing, thermal transfer, or plain paper inkjet printing.

2.2.4 External RAM and ROM

Moveable and programmable size external SRAM memory of up to 1 MB, DRAM memory of up to 4 MB, and ROM of up to 2 MB can be directly connected to the SCE209. By using an external address decoder, the size of SRAM and/or ROM can be extended. The ROM stores all the program object code.

2.2.5 Flash Memory Controller

The SCE209 includes a flash memory controller that supports NOR, NAND, and Serial NAND-type flash memory. The supported size of NOR-type memory is up to 1 MB and the supported size of NAND-type memory is unlimited.

2.2.6 Stepper Motor Control

Eight outputs are provided to external current drivers: four to the scanner motor and four to the printer motor. The stepping patterns are programmable and selectable line times are supported. A timeout circuit controls the power control of the motors. The printer or scanner motor outputs can be programmed as GPOs for applications using single motor or paper printers.

2.2.7 T.4/T.6 Compression/Decompression

MH, MR and MMR compression and decompression are provided in hardware. T.4 line lengths of up to 8192 pixels are supported. MMR and Alternating Compression/Decompression (ACD) on a line by line basis provide support for up to three independent compression and decompression processes.

2.2.8 Bi-level Resolution Conversion

One independent programmable bi-level 1D-resolution conversion block is provided to perform expansion or reduction on the T.4 decompressed data and scan image data. Image expansion can be programmed up to 200% and reduction down to 33%. Vertical line O-Ring and data output bit order reversal is also provided.

2.2.9 Printer IF

The Printer Interface provides a standard connection between the SCE209 and a thermal printhead to support thermal printing or thermal transfer. The thermal printer interface consists of programmable data, latch, clock, and up to four strobe signals. Programmable timing supports traditional thermal printers, as well as the latchless split mode printers, and line lengths of up to 2048 pixels. Line times from 5 ms to 40 ms are supported.

The SCE209 includes a thermal ADC (TADC) function utilizing a D/A converter and a comparator to monitor the printhead temperature. External terminating resistors must be supplied; the values are determined by the specific printhead selected.

As an option, plain paper inkjet printing can be supported.

2.2.10 TPH Hardware Timer

The TPH hardware timer provides a 500 ms timer that can be re-triggered or reset.

2.2.11 Scanner and Video Control

Five programmable control and timing signals support common CCD and CIS scanners. The video control function provides signals for controlling the scanner and for processing its video output. Three programmable control signals (START, CLK1n, and CLK2) provide timing related to line and pixel timing. These are programmable with regard to start time, relative delay and pulse width.

Two video control output signals (VIDCTL[1:0]) provide digital control for external signal pre-processing circuitry. These signals provide a per pixel period, or per line period, timing with programmable polarity control for each signal.

2.2.12 Video Processing

The CX06835 supports two modes of shading correction for scanner data non-uniformity arising from uneven sensor output or uneven illumination. Corrections are provided on either an 8-pixel group or are applied separately to each pixel. Dark level correction and gamma correction are also provided.

Two-dimensional Error Diffusion/Dithering is performed on halftone images.

The CX06835 includes an 8 x 8 dither table, which is programmable and stored internally (8-bit per table entry). The table is arranged in a matrix of 8 rows by 8 columns. The video processing circuit provides mixed-mode detection/processing and multi-level Resolution Conversion for the scanner multi-level data. The conversion ratio of the multi-level Resolution Conversion is fixed to B4-A4 conversion.

2.2.13 Operator Panel Interface

Operation Panel functions are supported by the operator output bus OPO[6:0], the operator input bus OP[3:0], and two control outputs (LCDCS and LEDCTRL).

The CX06835 can directly interface to a 28-key keypad.

A 2-line LCD display module with 20 characters per line can be supported.

2.2.14 Synchronous Serial Interface (SSIF)

One or optionally two Synchronous only Serial Interfaces (SSIF) are built into the CX06835, which allows it to communicate with external peripherals. Each SSIF provides separate signals for Data (SSTXD, SSRXD), Clock (SSCLK), and Status (SSSTAT). Each SSIF is a duplex, three-wire system. The SSIF may be configured to operate as either a master or a slave interface. The bit rate, clock polarity, clock phase, and data shifting order are programmable.

2.2.15 Synchronous/Asynchronous Serial Interface (SASIF)

One or optionally two Synchronous/Asynchronous Serial Interface (SASIF) performs the following:

- Serial-parallel conversion of data received from a peripheral device.
- Parallel-to-serial conversion of data for transmission to a peripheral device.

This interface consists of serial transmit data (SASTXD), serial receive data (SASRXD), and a serial clock (SASCLK). The SASIF includes a programmable bit rate generator for asynchronous and synchronous operations. The data shifting order, data bit number, and the SASCLK polarity are programmable.

The optional SASIF 2 has an additional pin called DSS_AVAIL. This signal can be used to tristate the SASCLK2 and SASTXD2 signals.

2.2.16 Real Time Clock (RTC)

The CX06835 includes a battery backup real time clock. The RTC will automatically maintain the proper date and time for 32 years. Leap year compensation is included. A 32.768 kHz or 65.536 kHz crystal is required by the RTC.

2.2.17 Tone Generator (ALT_TONE)

The CX06835 provides a programmable tone generator output. The frequency of the tone generator is programmable from 400 Hz to 4 kHz. By using a PWM programmable high frequency as a modulation frequency, the output level can be made programmable.

2.2.18 Watchdog Timer

The Programmable Watchdog Timer is intended to guard against firmware lockup on the part of either executive-controlled background tasks or interrupt-driven tasks, and can only be enabled by a sequence of events under control of the Watchdog Control Logic. Once the Watchdog Timer has been enabled, it can not be disabled unless a system reset occurs.

2.2.19 Reset and Power Control

The RESETn I/O pin provides an internally generated reset output to external circuits, or it can accept an externally generated reset signal. This reset signal will not reset the RTC. Separate RTC battery power inputs are provided for battery-backup functions. A BATRSTn pin is provided, which resets the RTC circuits and other SCC circuits.

2.2.20 Power Up/Down Control

Power Up/Down detection is provided internally. The threshold voltages are:

- Power Up detection level = 2.83V to 2.95V.

An internally generated power down signal controls internal switching between primary and battery power. This control signal is also provided as an output on the PWRDWNn pin. An externally generated power down detector (optional) can be provided as an input on the PWRDWNn pin by setting the INTPWRDWNEn pin.

2.2.21 Stand-by and Sleep Modes

Two power saving modes are provided to reduce the power consumption. In stand-by mode, the CPU is functional, but the modem clock is turned off to save power. When this occurs, the modem may be activated by software under different conditions. In sleep mode, the clock is cut off from both the modem and the CPU to increase the power savings.

The system can be activated by paper insertion, key pressing events, and telephone ring detection.

2.2.22 Embedded Modem DSP

The embedded modem DSP is a synchronous 9600 bps half-duplex modem with error detection and DTMF generation/reception. It provides data transmission/reception from regular PSTN lines, PBX, or private lines.

The modem can operate at any standard V.29 data speed up to 9600 bps as well as in V.21 and V.23 modes.

The modem is designed for use in Group 3 facsimile machines. It satisfies the requirements specified in ITU-T recommendations V.29, V.27ter, V.21 Channel 2, and T.4 , and meets the signaling requirements of T.30. It also performs HDLC framing according to T.30 at all speeds.

NOTE: For technical details, refer to the FM209/FM214 Designer's Guide, (document 1175).

2.2.23 Software and Firmware Support Features

Available software and embedded firmware provides the following:

- Modem support for speeds up to 9600 bps.
- ECM under conditional assembly.
- DRAM memory support under conditional assembly.
- MH, MR and MMR support.
- Page memory receiving.
- 5 ms minimum scan line time.
- Conditional Error Diffusion or Dither table (8x8) support.
- Dark Level Correction support.
- Single motor support.
- 28-key operator panel support.
- Call progress support for Europe and U.S.A.
- Monochrome inkjet print engine support.

SCE209 (IC3) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
1	VDDPLL	—	—	—	PLL Power
2	VSSPLL	—	—	—	PLL GND
3	ROMCSn	—	—	13Xs	—
4	SYNC/GPO[20]	O	—	13Xs	—
5	WRn	O	—	13Xs	—
6	RDn	O	—	13Xs	—
7	DEBUGn	I	Hu	—	—
8	TSTCLK	O	—	13Xs	—
9	VSS	—	—	—	Digital GND
10	SXIN	I	Osc0	—	—
11	SXOUT	O	—	Osc0	—
12	OPO[0]/GPO[8]/SMPWRCTRL	O	—	13Xs	—
13	OPO[1]/GPO[9]/PMPWRCTRL	O	—	13Xs	—
14	OPO[2]/GPO[10]/RINGER	OZ	—	13Xs	—
15	OPO[3]/GPO[11]	O	—	13Xs	—
16	OPO[4]/GPO[12]/SSTXD1	O	—	13Xs	—
17	OPO[5]/GPO[13]	O	—	13Xs	—
18	OPO[6]/GPO[14]	O	—	13Xs	—
19	OPI[0]/GPIO[21]/SSRXD1	I/O	Hu	13Xs	—
20	OPI[1]/GPIO[22]/SSSTAT1	I/O	Hu	13Xs	—
21	OPI[2]/GPIO[23]/SSCLK1	I/O	Hu	13Xs	—
22	OPI[3]/GPIO[24]	I/O	Hu	13Xs	—
23	LCDCS/GPO[17]	O	—	1XC	—
24	VDD	—	—	—	Digital Power
25	RASn	O	—	13Xs	—
26	CAS[0]n	O	—	13Xs	—
27	DWRn	O	—	13Xs	—
28	VBAT	—	—	—	RTC Battery Power
29	XIN	I	Osc1	—	—
30	XOUT	O	—	Osc1	—
31	WRPROTn	O	—	1XC	—
32	TEST[1]	I	Hd	—	—
33	TEST[0]	I	Hd	—	—
34	BATRTSn	I	H	—	—
35	INTPWRDWNEn	I	H	—	—
36	PWRDWNn	I/O	H	13Xs	—
37	N.C.	—	—	—	—
38	ADGA	—	VADG	—	PADC Analog GND
39	VREFn/CLREF	I	VR-	—	PADC
40	VIN	I	VA	—	PADC
41	ADGA	—	VADG	—	PADC Analog GND
42	ADVA	—	VADV	—	PADC Analog Power
43	ADXG	—	VXG	—	PADC
44	VREFp	I	VR	—	PADC
45	VSS	—	—	—	VSS Digital GND
46	IVREFn	O	—	VR-	PADC
47	IVREFp	O	—	VR+	PADC
48	VDD	—	—	—	Digital Power
49	THADI	I	Analog	—	TADC
50	VSS	—	—	—	Digital GND
51	GPIO[17]/DSPIRQn	I/O	Hu	13Xs	—
52	GPIO[16]/IRQ[8]	I/O	Hu	13Xs	—
53	GPIO[15]/CS[5]n	I/O	Hu	13Xs	—
54	GPIO[13]/CS[3]n	I/O	Hu	13Xs	—
55	GPIO[37]/IRQ15n/DSPCSn	I	Hu	13Xs	—
56	GPIO[4]/CPCIN/TPHPWRCTRL/DMAREG	I/O	Hu	13Xs	—
57	STRB[0]	O	—	1XC	—
58	STRB[1]	O	—	1XC	—
59	STRB[2]	O	—	1XC	—
60	STRB[3]	O	—	1XC	—
61	PLAT	O	—	3XC	—
62	PDAT	O	—	2XC	—

SCE209 (IC3) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
63	PCLK/DMAACK	O	—	3XC	—
64	VDD	—	—	—	Digital Power
65	GPIO[11]/BE/SERINP/SR4IN	I/O	Hu	13Xs	—
66	GPIO[19]/RDY/SEROUT	I/O	Hu	13Xs	—
67	START	O	—	2XC	—
68	CLK1n/GPO[25]	O	—	13Xs	—
69	CLK2/GPO[24]	O	—	13Xs	—
70	GND	—	—	—	IA GND
71	MCLK	ID	—	—	Main Clock from DSP
72	CTRLI	ID	d	—	Control Data from DSP
73	TESTC	ID	d	—	IA Test
74	SOUT	OD	—	T	Serial Data to DSP
75	SIN	ID	d	—	Serial Data to DSP
76	FSYNC	I/OD	d	—	Frame Sync Signal (IA)
77	POR	IA	d	—	Hardware Reset
78	GND	—	—	—	IA GND
79	LINE_INP	IA	—	—	Analog Input to Line Pre-Amp.
80	MIC_INP	IA	—	—	Positive differential Analog Input to Microphone Pre-Amp.
81	MIC_INM	IA	—	—	Negative differential Analog Input to Microphone Pre-Amp.
82	MIC_BIAS	OA	—	—	2.2 V Nominal DC Bias Source for Electret Microphone
83	BG	OA	—	—	Analog reference Voltage Output
84	VC	OA	—	—	Analog Ground Bias Output
85	AVDD	PWR	—	—	IA Analog Power
86	GND	—	—	—	IA GND
87	LINE_OUTP	OA	—	—	Line Driver Output
88	SPKR_OUTP	OA	—	—	Positive Speaker Driver Output
89	SPKR_OUTM	OA	—	—	Negative Speaker Driver Output
90	DVDD	PWD	—	—	IA Digital Power
91	MODE_0	ID	u	—	Connect to VSS (IA Mode Selection)
92	ICLK	I/OD	—	—	IA Bit Clock Input/Output
93	VSS	—	—	—	VSS Digital GND
94	FCSn[1]/VIDCTL[0]/GPO[23]	O	—	13Xs	—
95	IARESET	O	—	13Xs	DSP to EXTIA POR
96	IACLK	O	—	13Xs	DSP to EXTIA MCLK
97	VDD	—	—	—	Digital Power
98	IA1CLK	I	H	—	DSP from EXTIA ICLK
99	SR3IN/DSPIRQn	I	H	—	DSP from primary EXTIA SOUT/EXT. Modem IRQn
100	SR4OUT	O	—	13Xs	DSP to primary EXTIA SIN
101	SR1IO	O	—	13Xs	DSP to EXTIA CTRL1
102	SA1CLK	I	H	—	DSP from EXTIA FSYNC
103	GPIO[7]/SSRXD2/SASRXD2	I/O	Hu	13Xs	—
104	GPIO[6]/SSTXD2/SASTXD2	I/O	Hu	13Xs	—
105	GPIO[5]/SSCLK2/SASCLK2	I/O	Hu	13Xs	—
106	GPIO[10]/SSSTAT2/DSS_AVAIL	I/O	Hu	13Xs	—
107	VSS	—	—	—	Digital GND
108	RESETn	I/O	Hu	2XC	—
109	GPIO[3]/SASCLK	I/O	Hu	13Xs	—
110	GPIO[2]/SASRXD	I/O	Hu	13Xs	—
111	GPIO[1]/SASTXD	I/O	Hu	13Xs	—
112	GPIO[9]/FRDn	I/O	Hu	13Xs	—
113	GPIO[8]/FWRn	I/O	Hu	13Xs	—
114	A[0]	I/O	Tu	13Xs	CPU Address Bus
115	A[1]	I/O	Tu	13Xs	CPU Address Bus
116	A[2]	I/O	Tu	13Xs	CPU Address Bus
117	A[3]	I/O	Tu	13Xs	CPU Address Bus
118	A[4]	I/O	Tu	13Xs	CPU Address Bus
119	VDD	—	—	—	Digital power
120	A[5]	I/O	Tu	13Xs	CPU Address Bus
121	A[6]	I/O	Tu	13Xs	CPU Address Bus
122	A[7]	I/O	Tu	13Xs	CPU Address Bus
123	A[8]	I/O	Tu	13Xs	CPU Address Bus
124	A[9]	I/O	Tu	13Xs	CPU Address Bus

SCE209 (IC3) Terminal descriptions

Pin No.	Pin List	I/O	Input Type	Output Type	Pin Description
125	A[10]	I/O	Tu	13Xs	CPU Address Bus
126	A[11]	I/O	Tu	13Xs	CPU Address Bus
127	A[12]	I/O	Tu	13Xs	CPU Address Bus
128	A[13]	I/O	Tu	13Xs	CPU Address Bus
129	A[14]	I/O	Tu	13Xs	CPU Address Bus
130	A[15]	I/O	Tu	13Xs	CPU Address Bus
131	A[16]	I/O	Tu	13Xs	CPU Address Bus
132	VDD	—	—	—	Digital Power
133	VSS	—	—	—	Digital GND
134	A[17]	I/O	Tu	13Xs	CPU Address Bus
135	A[18]	I/O	Tu	13Xs	CPU Address Bus
136	A[19]	I/O	Tu	13Xs	CPU Address Bus
137	A[20]	I/O	Tu	13Xs	CPU Address Bus
138	A[21]/EYECLK	I/O	Tu	13Xs	CPU Address Bus
139	A[22]/EYESYNC	I/O	Tu	13Xs	CPU Address Bus
140	A[23]/EYEXY	I/O	Tu	13Xs	CPU Address Bus
141	D[0]	I/O	Tu	13Xs	CPU Data Bus
142	D[1]	I/O	Tu	13Xs	CPU Data Bus
143	D[2]	I/O	Tu	13Xs	CPU Data Bus
144	D[3]	I/O	Tu	13Xs	CPU Data Bus
145	D[4]	I/O	Tu	13Xs	CPU Data Bus
146	D[5]	I/O	Tu	13Xs	CPU Data Bus
147	D[6]	I/O	Tu	13Xs	CPU Data Bus
148	D[7]	I/O	Tu	13Xs	CPU Data Bus
149	GPIO[20]/ALTTONE	I/O	Hu	13Xs	—
150	GPIO[26]	I/O	Hu	13Xs	—
151	GPIO[27]	I/O	Hu	13Xs	—
152	GPIO[28]	I/O	Hu	13Xs	—
153	GPO[26]	O	—	13Xs	—
154	GPO[27]	O	—	13Xs	—
155	GPO[28]	O	—	13Xs	—
156	GPO[29]	O	—	13Xs	—
157	GPO[30]/SR3OUT	O	—	13Xs	—
158	GPIO[29]	I/O	Hu	13Xs	—
159	GPIO[31]	I/O	Hu	13Xs	—
160	GPIO[32]	I/O	Hu	13Xs	—
161	VDD	—	—	—	Digital power
162	GPIO[34]	I/O	Hu	13Xs	—
163	GPIO[35]	I/O	Hu	13Xs	—
164	GPIO[36]	I/O	Hu	13Xs	—
165	Vss	—	—	—	Digital GND
166	VDD	—	—	—	Digital Power
167	PM[0]/GPO[0]	O	—	13Xs	—
168	PM[1]/GPO[1]	O	—	13Xs	—
169	PM[2]/GPO[2]	O	—	13Xs	—
170	PM[3]/GPO[3]	O	—	13Xs	—
171	SM[0]/GPO[4]	O	—	13Xs	—
172	SM[1]/GPO[5]	O	—	13Xs	—
173	SM[2]/GPO[6]	O	—	13Xs	—
174	SM[3]/GPO[7]	O	—	13Xs	—
175	REGDMA/GPO[18]/CLKDIV[0]	I/O	T	13Xs	—
176	WAITn/GPO[19]/CLKDIV[1]	I/O	T	13Xs	—

2.3. Panel control block

The following controls are performed by the SCE209.

- Operation panel key scanning
- Operation panel LCD display

2.4. Mechanism/recording control block

- Recording control block diagram (1)

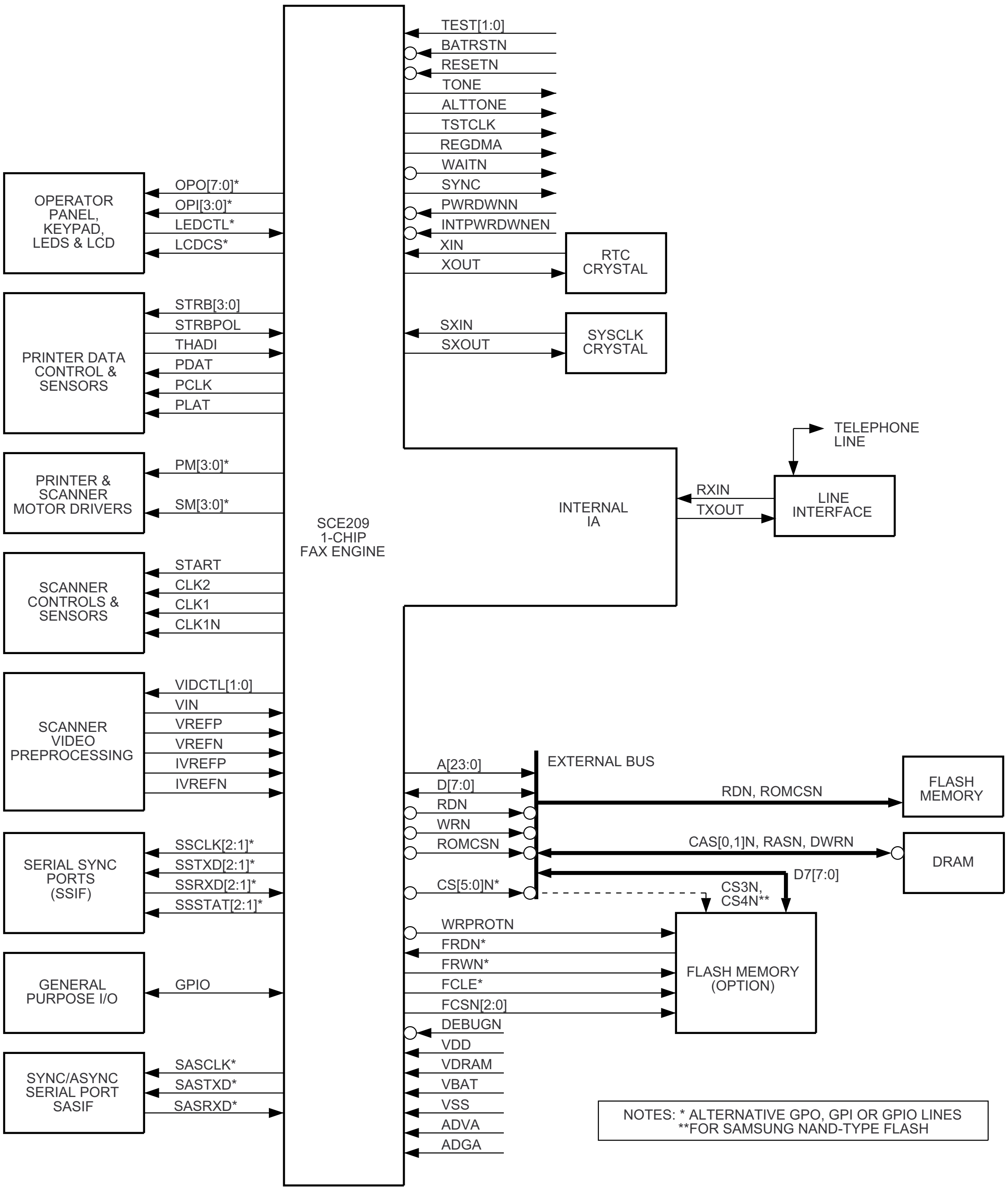


Fig. 3

2.5. Modem block (CX20438)

Integrated Analog Control Resisters for CX20438

The CX20438 IA can be used as a Primary Integrated Analog (PIA) codec or as a Secondary Integrated Analog (SIA) codec, depending on the signal connection with the SCE Controller ASIC device. In the SCE100 product, both the PIA and the SIA are packaged external to the SCE Controller device, whereas in the SCE209, the PIA is packaged with the SCE209 Controller and the SIA is external.

The CX20438 IA provides gain, filtering, internal analog switching, and an internally sourced microphone bias output. The IA is controlled by three control registers and an address register located in internal RAM space which are accessed via the modem interface memory. These registers provide individual controls for the IA's inputs, outputs, gain settings, and switching.

The registers are located in internal DSP RAM. Each bit of each 8-bit IA control register has exactly the same meaning for the PIA and the SIA. The LSB of each 16-bit address contents is used to control the PIA. The MSB of each 16-bit address contents is used to control the SIA.

The following table the PIA/SIA control register RAM access code.

Register	SBRAMx	BRx	Crx	IOx	AREXx	ADDx	PIA Reg*	SIA Reg*
IACR1	0	0	0	0	0	D0	0	1
IACR2	0	0	0	0	0	D4	0	1
IACR3	0	0	0	0	0	D5	0	1
IAADD	0	0	0	0	0	CE	0, 1	0, 1
NOTES: *Registers to use when x=1. When x=2, add 10h.								

- For changes made to IACR1 to be effective, the host must write to IAADD with a value of 0002h.
- For changes made to IACR2 to be effective, the host must write to IAADD with a value of 0006h.
- For changes made to IACR3 to be effective, the host must write to IAADD with a value of 0007h.

Configuration default values are shown below.

DEFAULT VALUE			
CONFIGURATION	IACR1	IACR2	IACR3
V.17/V/33	1D9Eh	0008h	0000h
V.29	1D9Eh	0008h	0000h
V.27ter	1D9Eh	0008h	0000h
V.21 Ch. 2	1D9Eh	0008h	0000h
V.23/Caller ID	1D9Eh	0008h	0000h
Tone Transmit/Detect	1D9Eh	0008h	0000h
Voice/Audio Codec	0D16h	0008h	0000h
Speakerphone	0D16h	0008h	0000h

The following signal flow block diagram is for a signal IA and it applies to both PIA and SIA.

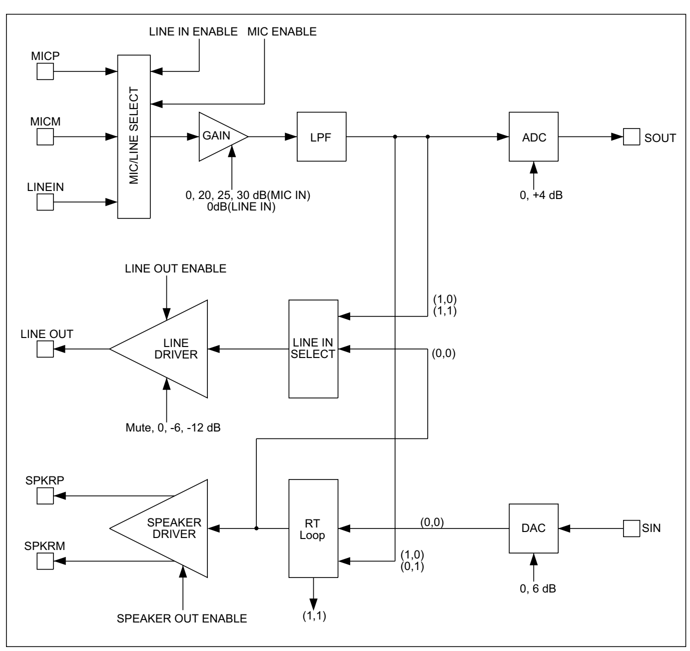


Fig. 4 PIA/SIA Signal Flow Control

[3] Circuit description of TEL/LIU PWB

1. TEL/LIU block operational description

1.1. Block diagram

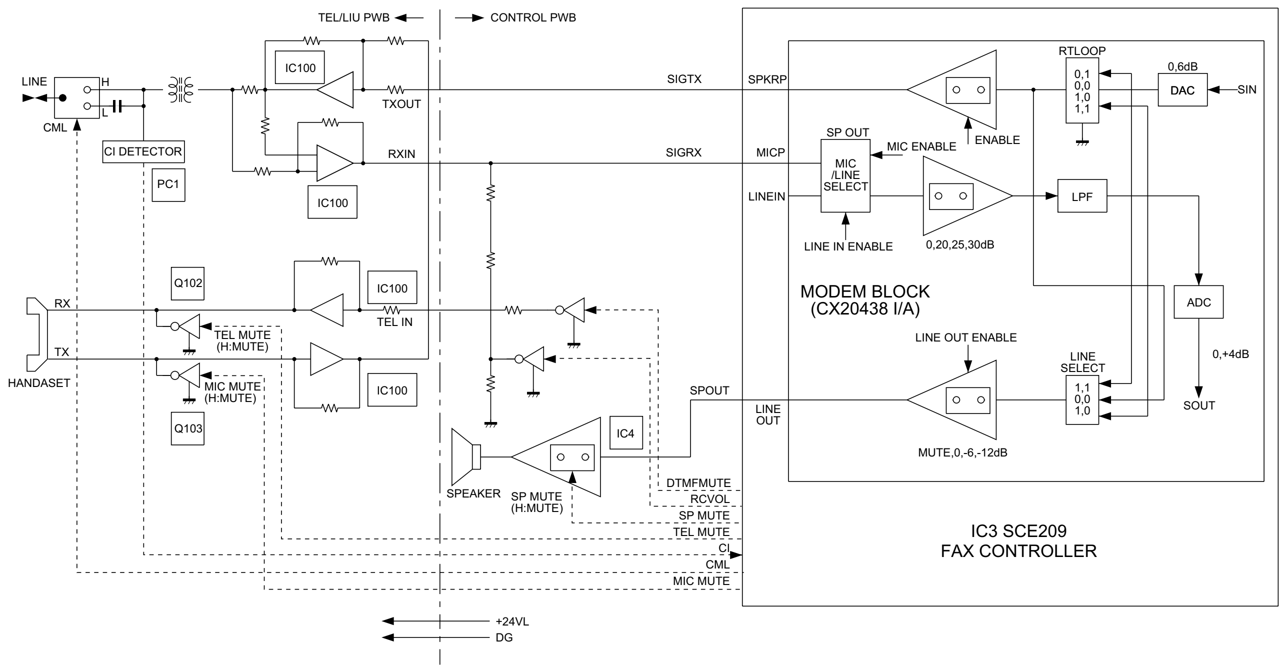


Fig. 5

1.2. Circuit description

The TEL/LIU PWB is composed of the following 6 blocks.

1. Speech circuit section
2. Dial transmission section
3. Speaker amplifier section
4. Ringer circuit section
5. CI detection circuit
6. Signal/DTMF transmission level & receiving level

1.3. Block description

1. Speech circuit section
   - The receiver volume is an electronic volume type, this model is switched in 3 steps.
2. Dial transmission section
   - D.P. transmission: The CML relay is turned on and off for control in the DP calling system. (Refer to the attached sheet.)
   - DTMF transmission: It is formed in the modem, and is output.
3. Speaker amplifier section
   - Ringer volume: It is controlled by the combination of the attenuator value of the LINE DRIVER in the modem and the ringer sending level sent from the modem.
   - Speaker volume: It is controlled by the attenuator value of the LINE DRIVER in the modem.
4. Ringer circuit section
   - The ringer sound is formed in the tone of modem when CI signal is detected. The amplifier circuit drives the speaker of the main body.

5. CI detection circuit

- CI is detected by the photo coupler which is integrated in series in the primary side TEL circuit well proven in the existing unit.

6. Signal/DTMF transmission level & receiving level

- Signal transmission level setting: ATT -8 dB Circuit output: -11 dBm.
- DTMF transmission level setting: HF -2.5 dBm LF -4.5 dBm Thus, set the level.

1.4. Signal selection

The following signals are used to control the transmission line of TEL/FAX signal. For details, refer to the signal selector matrix table.

[Control signals from output port]

Signal Name	Description
CML (The circuit is located in the TEL/LIU PWB.)	Line connecting relay and DP generating relay H: Line make L: Line break
SP MUTE (The circuit is located in the TEL/LIU PWB.)	Speaker tone mute control signal H: Muting (Power down mode) L: Muting cancel (Normal operation)
TELMUTE	Handset reception mute control signal H: Muting L: Muting cancel
RCVOL DTMFMUTE (The circuit is located in the control PWB.)	Handset receiver volume control signal <table><tr><td>Volume</td><td>High</td><td>Middle</td><td>Low</td><td>DTMF sending</td></tr><tr><td>RCVOL</td><td>L</td><td>H</td><td>H</td><td>H</td></tr><tr><td>DTMFMUTE</td><td>L</td><td>L</td><td>H</td><td>H</td></tr></table> Note: The DTMF sending listed above is DTMF signal sending in the handset OFF-HOOK mode.

VOLUME SETTING		LINEOUT A		RCVOL	DTMF MUTE
		(HIGH)	(LOW)		
Receiver volume setting	Low			1	1
	High			0	0
	Middle			1	0
DTMF Transmission volume setting (Receiver)	Fixed			1	1
Key buzzer volume setting					
Speaker volume setting	Low	1	1		
	Middle	1	0		
	High	0	1		
Ringer volume setting	Low	1	1		
	Middle	1	0		
	High	0	1		
DTMF speaker volume setting	Low	1	1		
	Middle	1	0		
	High	0	1		

[Signals for status recognition according to input signals]

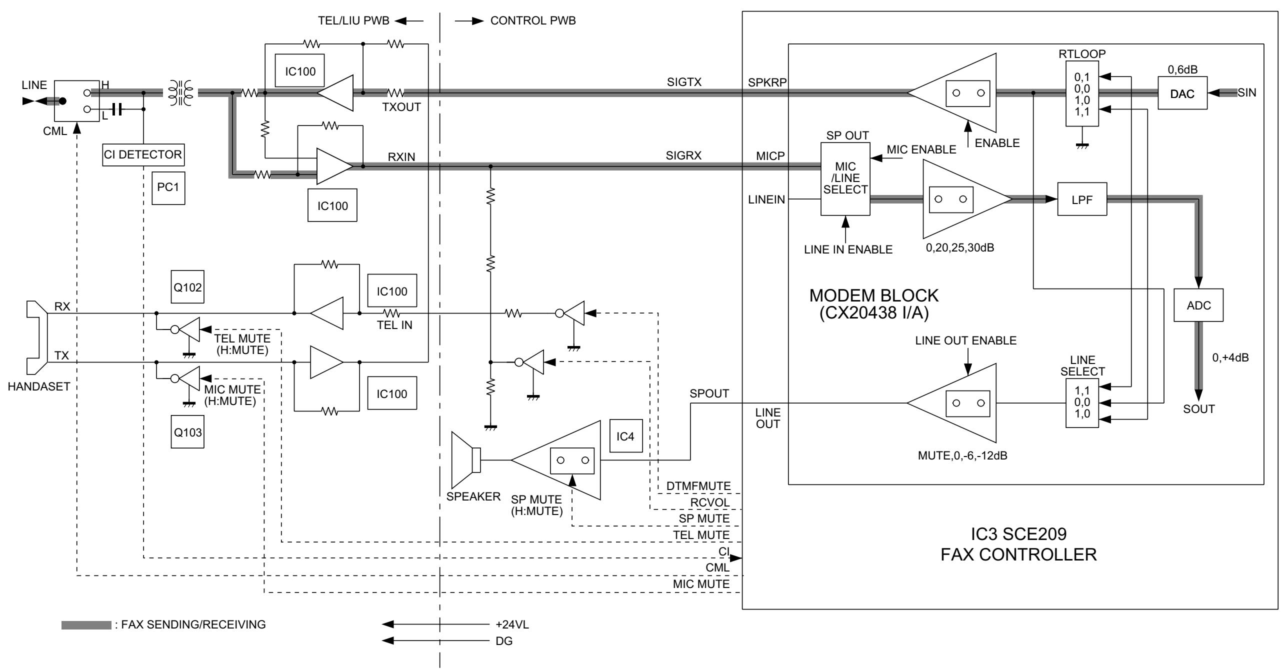
Signal Name	Function
RHS	H: The handset is in the on-hook state. L: The handset is in the off-hook state.
CI	Incoming call (CI) detection signal

[Other signals]

Signal Name	Function
TEL IN	Receiving signal from line or modem
SPOUT	Speaker output signal
TXOUT	Transmission (DTMF) analog signal output from modem
RXIN	Reception (DTMF, others) analog signal input into modem

NO	Signal Name (CNLIUA)	NO	Signal Name (CNLIUA)
1	RHS-	7	RXIN
2	MAG	8	TXOUT
3	+24VL	9	CML
4	MICMUTE	10	PIN
5	TELIN	11	FILM
6	TELMUTE	12	CI-

(Example: SENDING/RECEIVING)



[4] Circuit description of power supply PWB

1. Block diagram

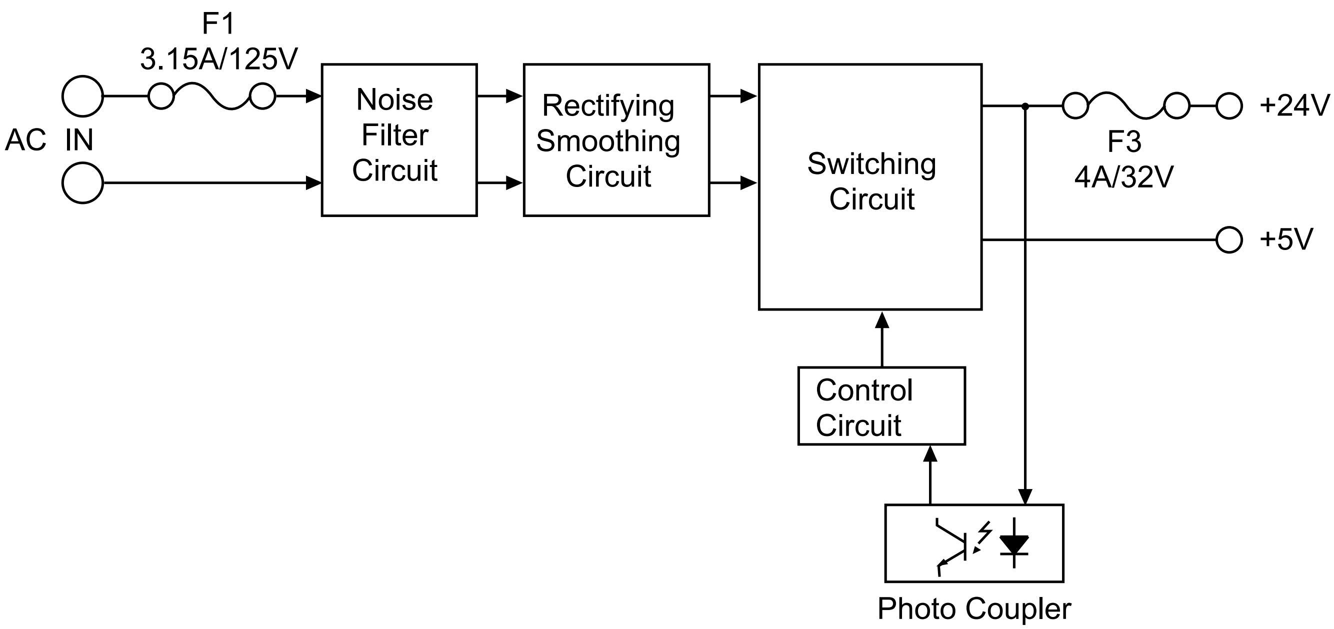


Fig. 7

2. Noise filter circuit

The input noise filter section is composed of L1 and C1, which reduces normal mode noise from the AC line and common mode noise to the AC line.

3. Rectifying/smoothing circuit

The AC input voltage is rectified by diode D1, 2, 3, 4 and smoothed by capacitor C2 to supply DC voltage to the switching circuit section.

4. SWitching circuit

This circuit includes MOS FET Q1 and the gate drive circuit, and components around Q1.

In this circuit, the DC voltage supplied from the rectifying/smoothing section is converted into high Frequency pulses by ON/OFF repetition of Q1.

5. Control circuit

This circuit controls output voltage of +24V by adjusting ON period of Q1, looking at signal from photo coupler PC1.

In this operation PC1 takes charge of important part.

The over current protection is performed by bringing Q1 to OFF state through detection of voltage of T1 subwinding.

The over voltage protection is performed by operating the over current protection circuit through detection of Zener diode ZD4 and short-circuiting of load.

[5] Circuit description of CIS unit

1. CIS

CIS is an image sensor which puts the original paper in close contact with the full-size sensor for scanning, being a monochromatic type with the pixel number of 1,728 dots and the main scanning density of 8 dots/mm.

It is composed of sensor, rod lens, LED light source, light-conductive plate, control circuit and so on, and the reading line and focus are previously adjusted as the unit.

Due to the full-size sensor, the focus distance is so short that the set is changed from the light weight type to the compact type.

2. Waveforms

The following clock is supplied from SCE209 of the control board, and VO is output.

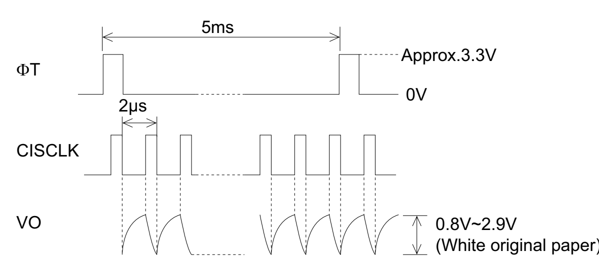
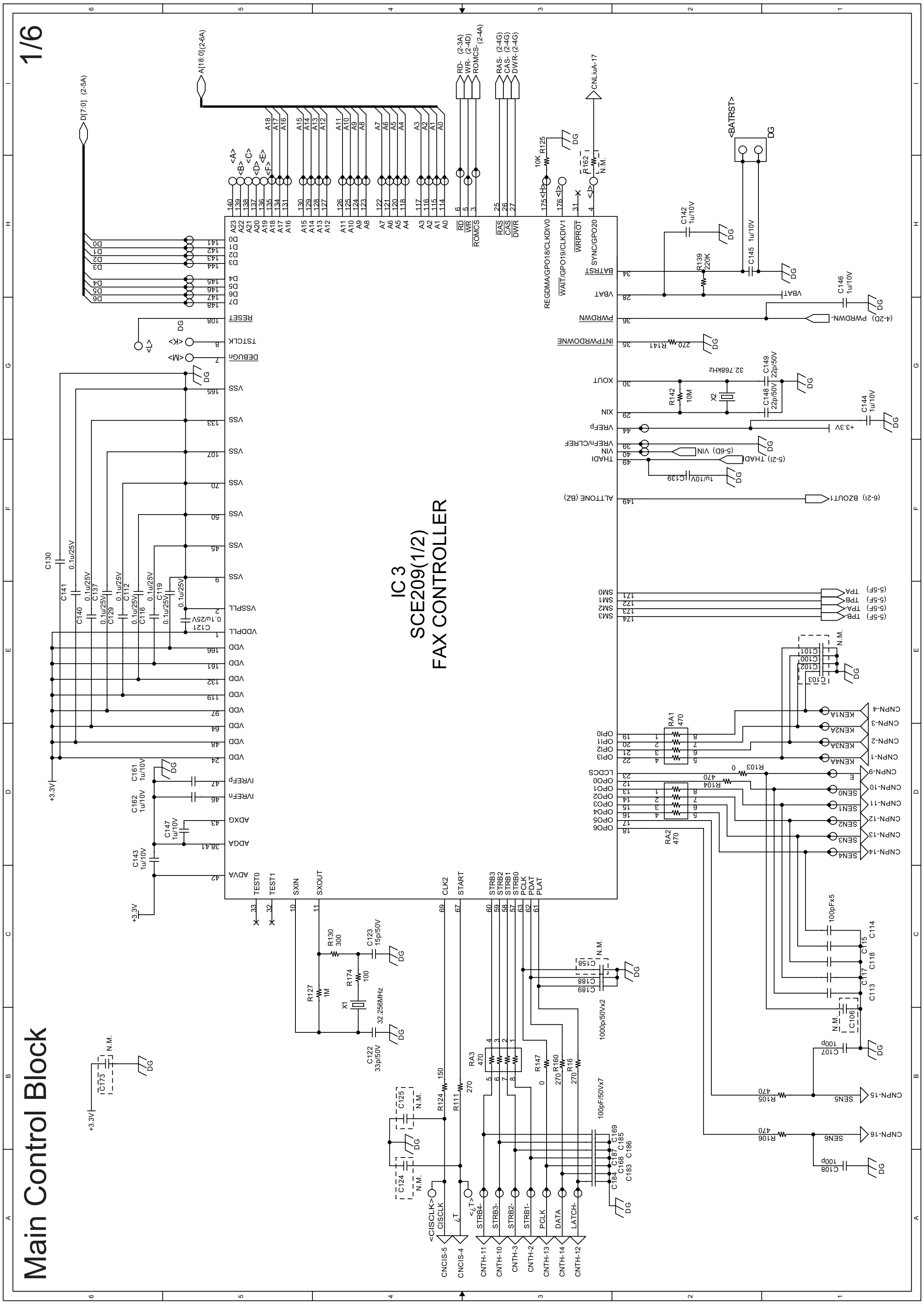


Fig. 8

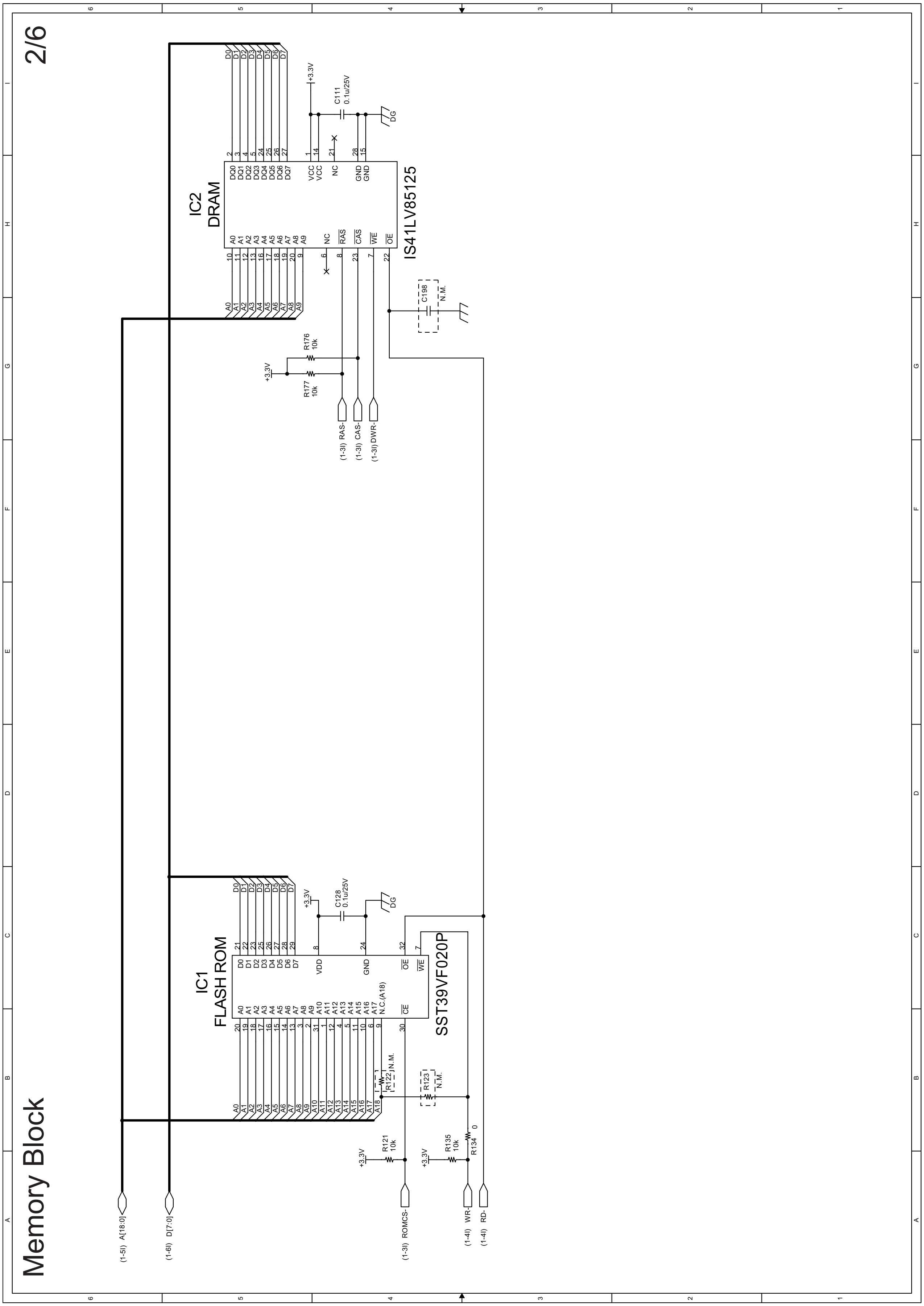
CHAPTER 6. CIRCUIT SCHEMATICS AND PARTS LAYOUT

[1] Control PWB circuit

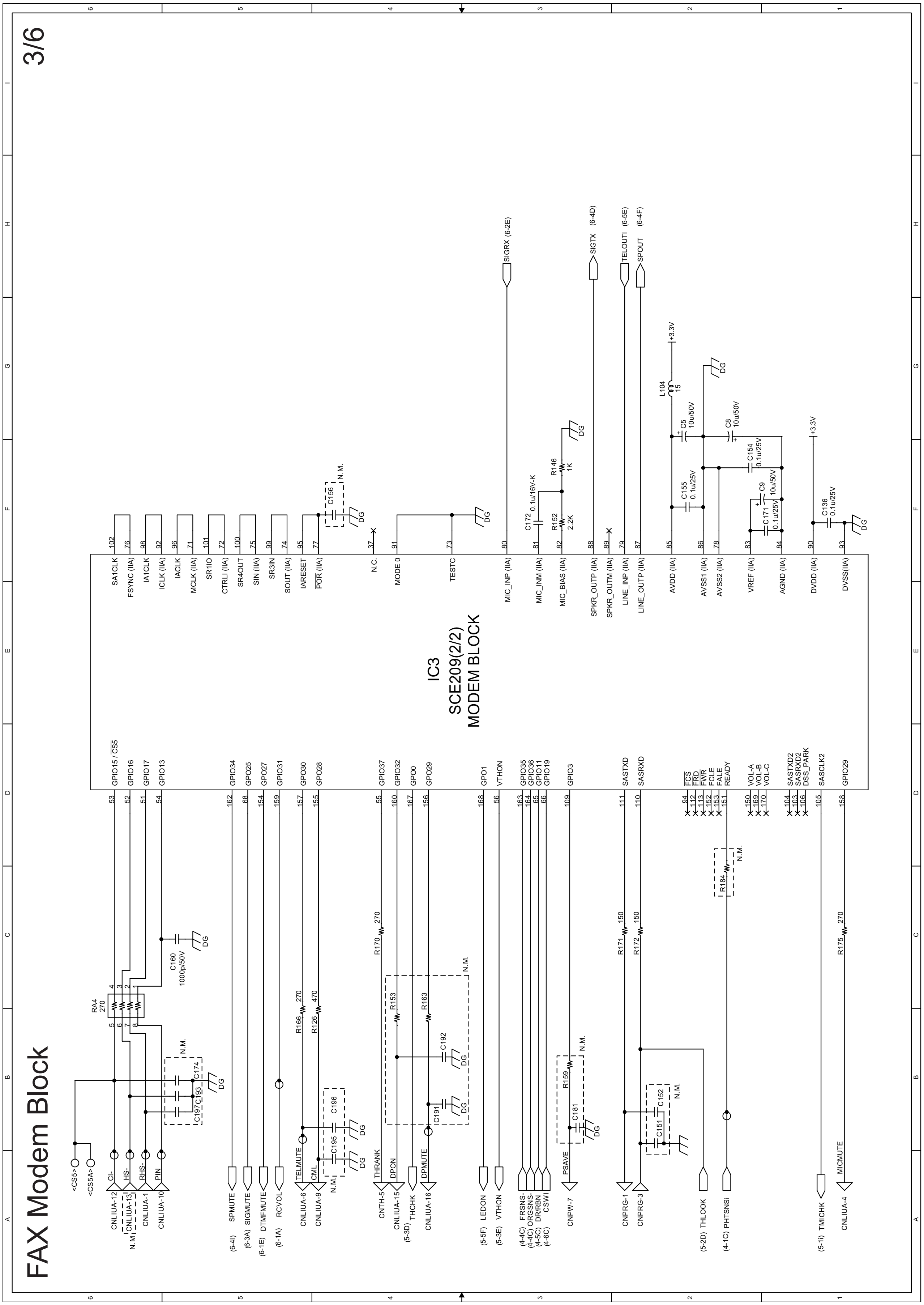
1. Main control block



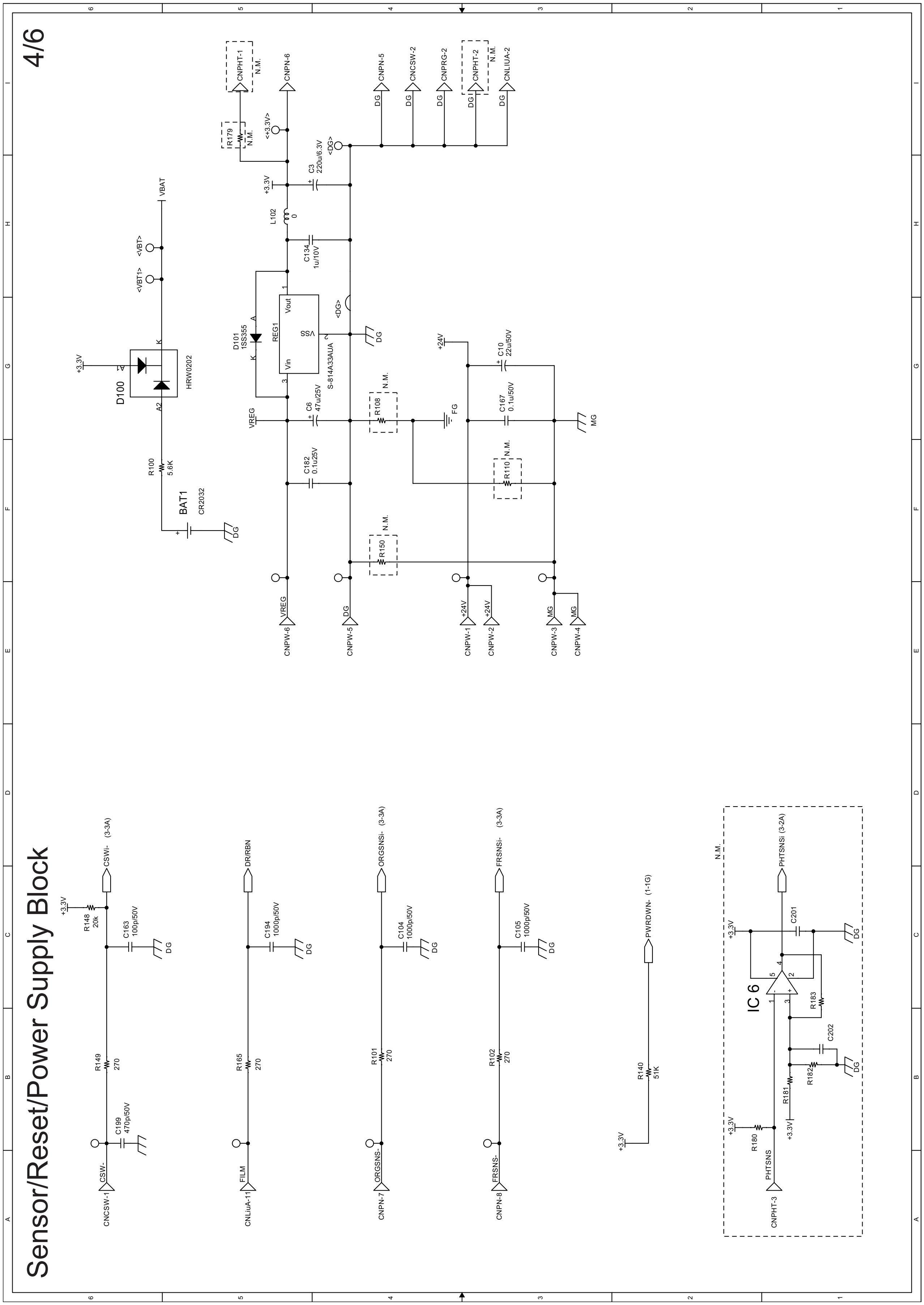
2. Memory block



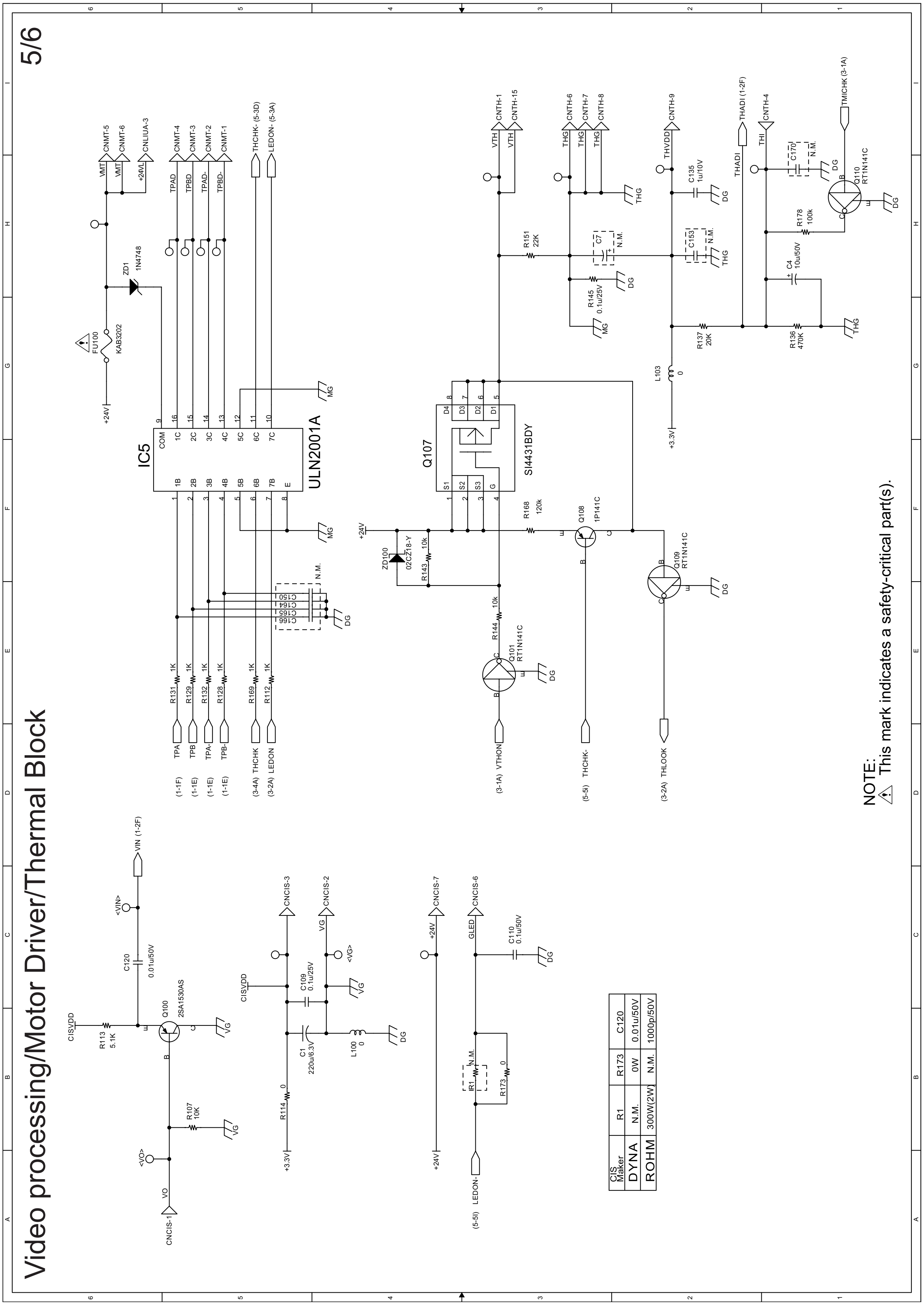
3. FAX Modem block



4. Sensor/Reset/Power supply block

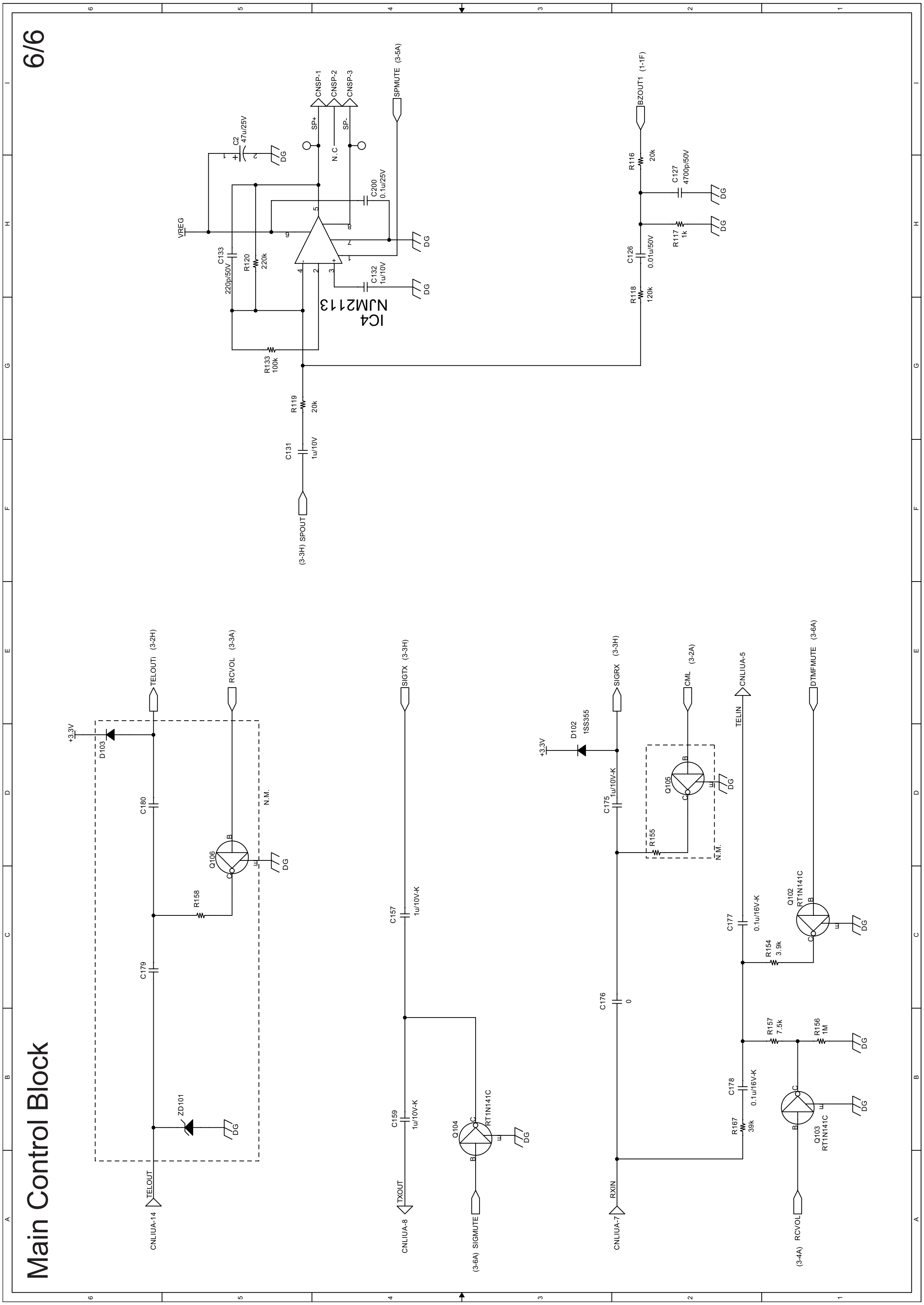


5. Video processing/Motor driver/Thermal block

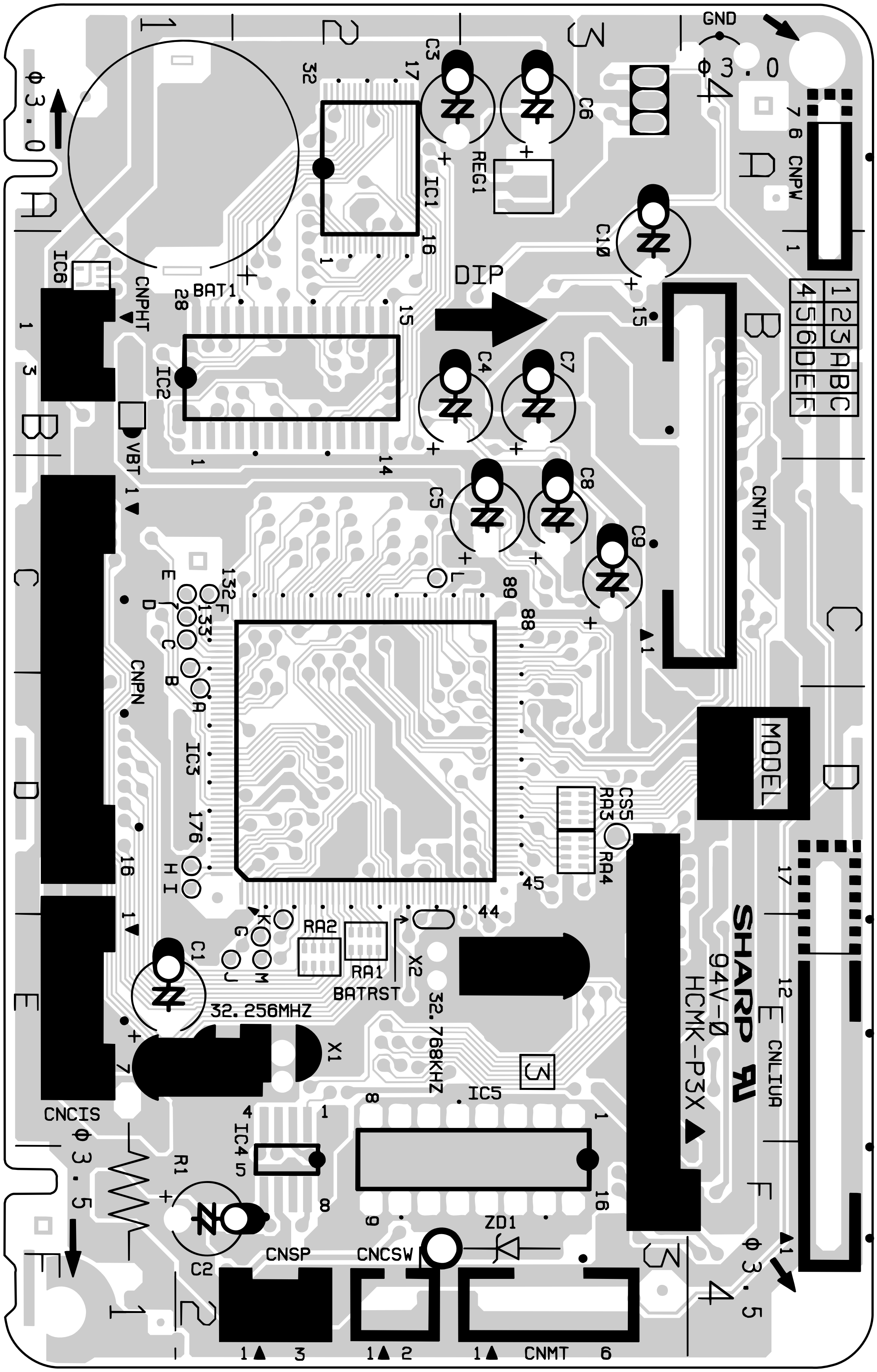


CIS Maker	R1	R173	C120
DYNA	N.M.	0W	0.01u/50V
ROHM	300W(2W)	N.M.	1000p/50V

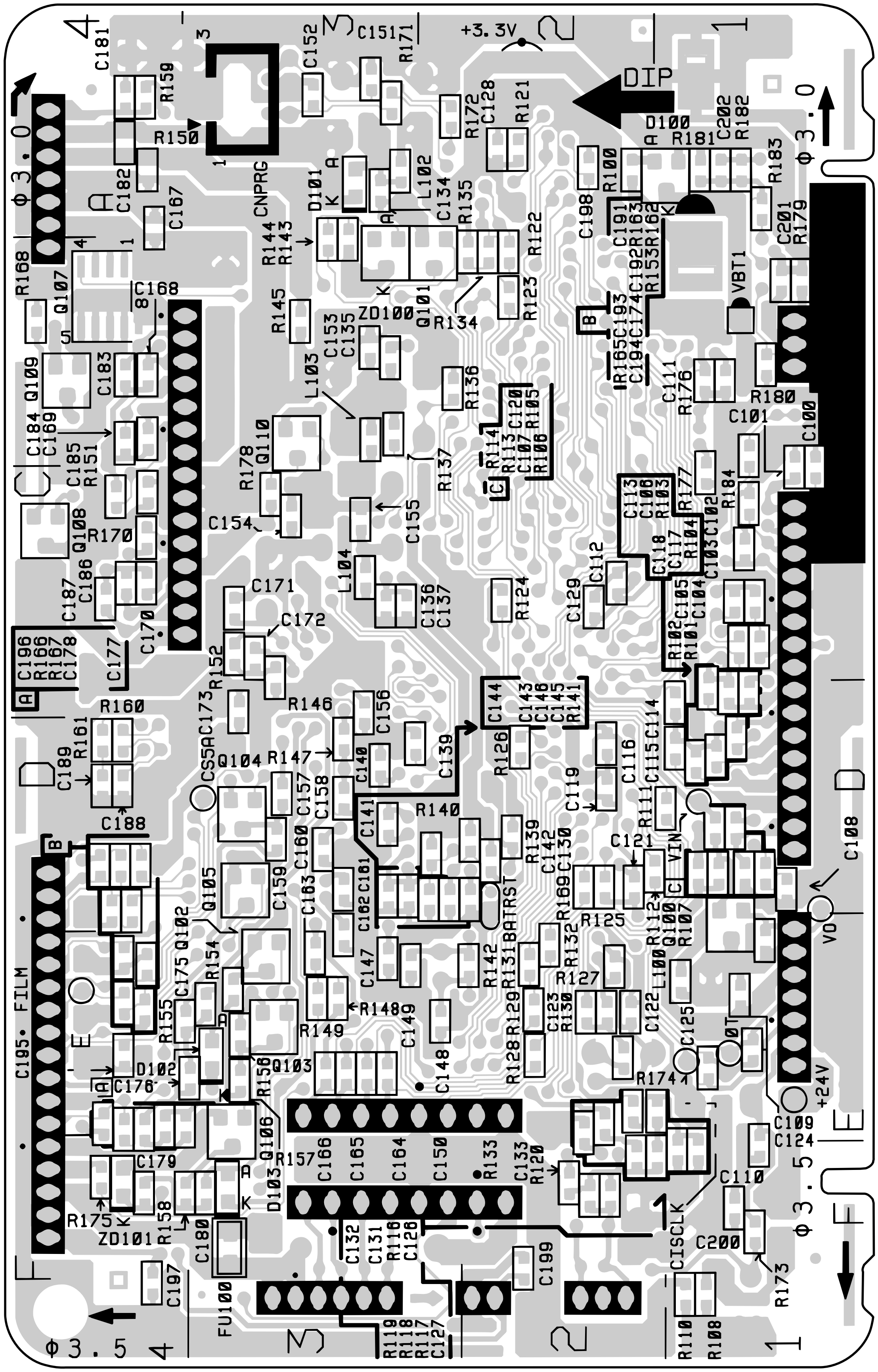
6. Analog signal block



7. Control PWB parts layout (Top side)

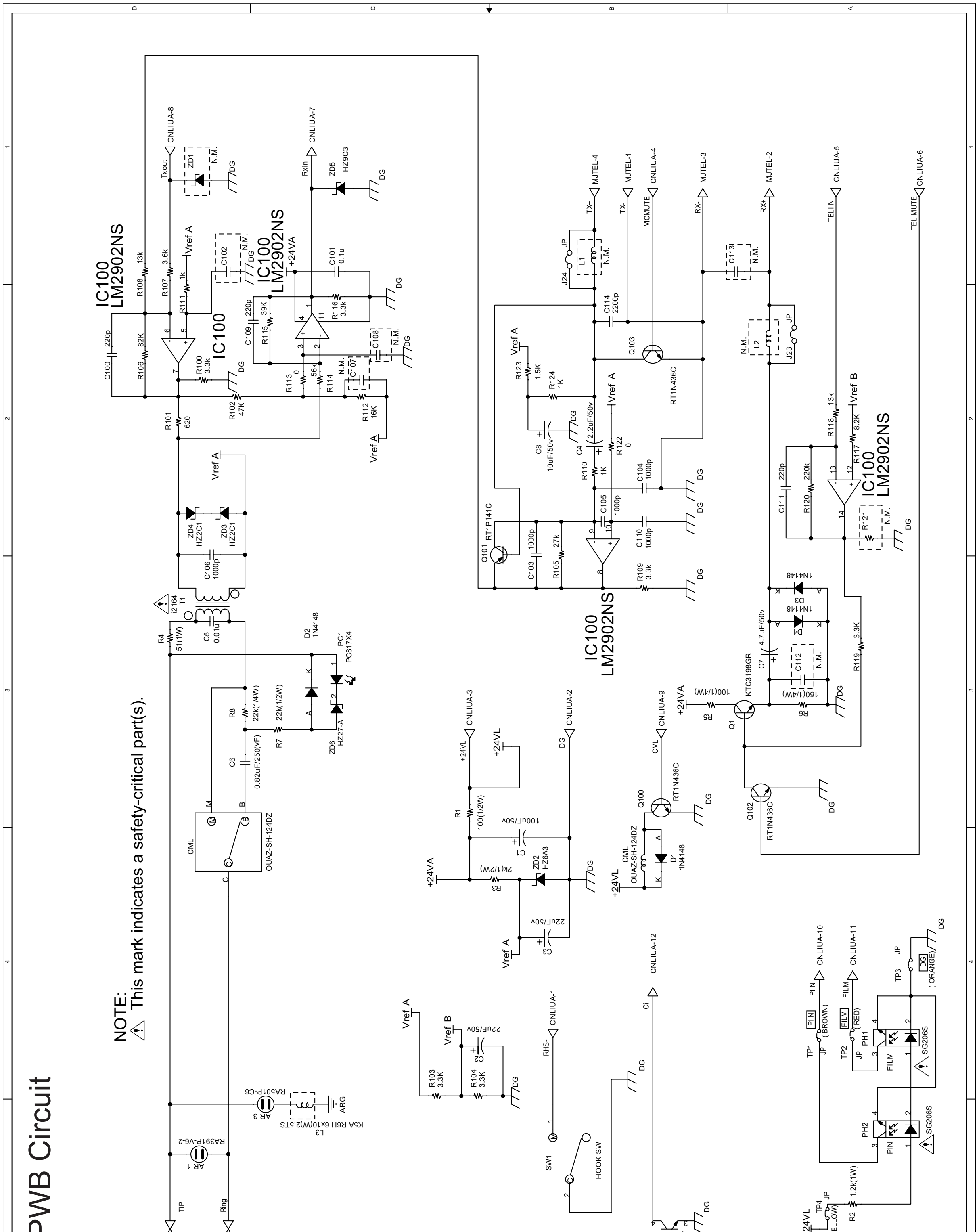


8. Control PWB parts layout (Bottom side)

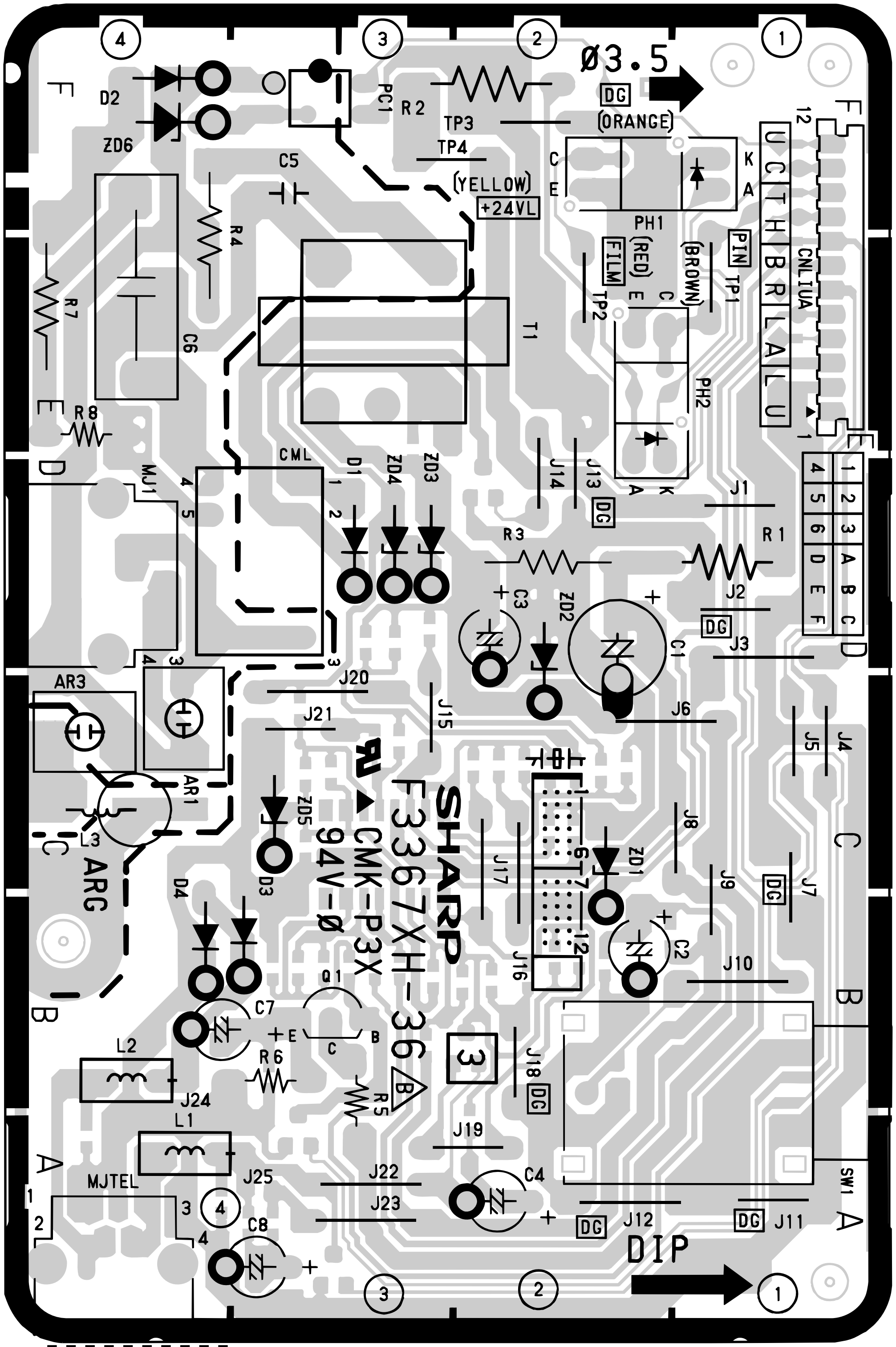


[2] TEL/LIU PWB circuit

1. TEL/LIU PWB circuit



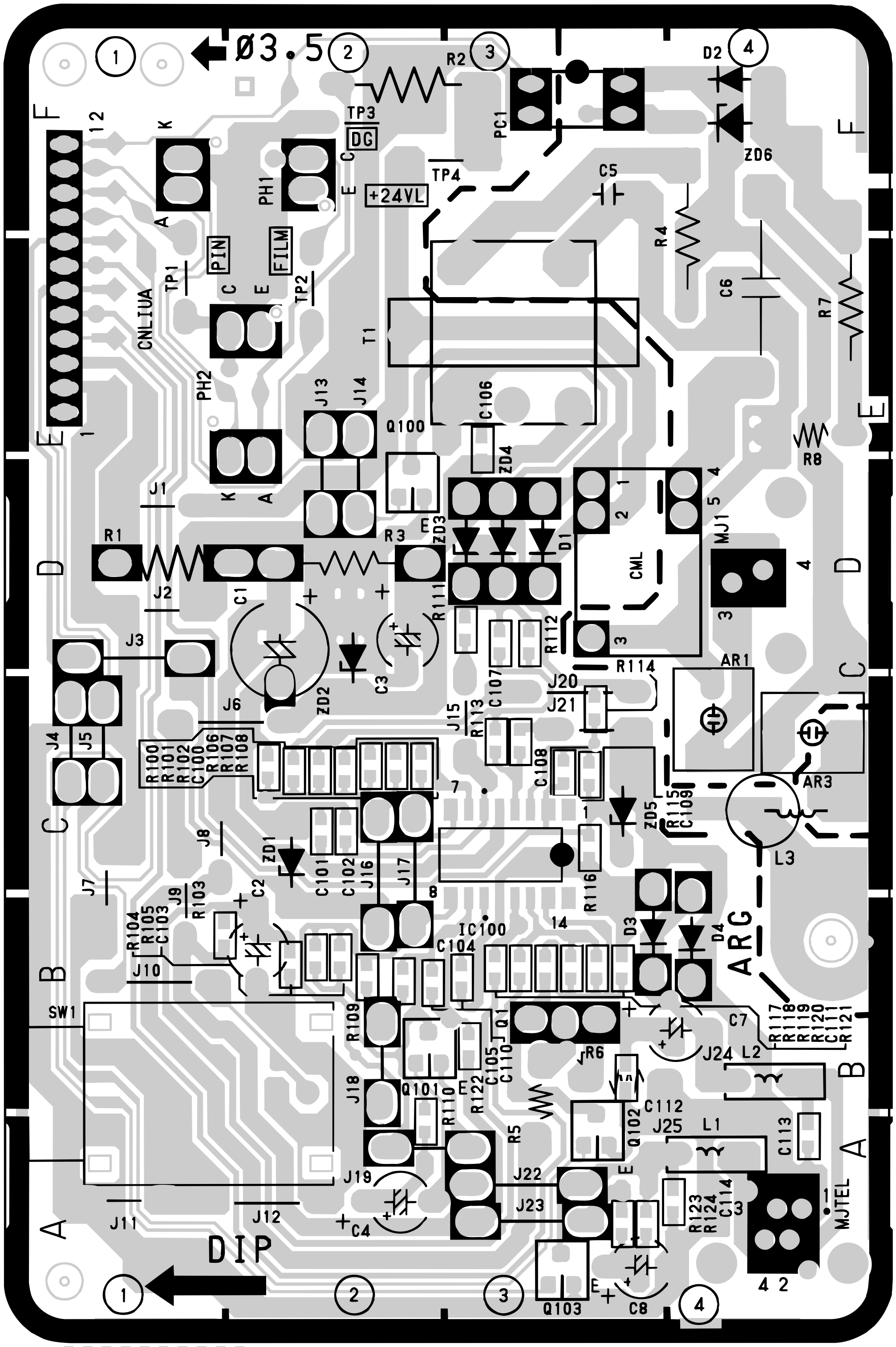
2. TEL/LIU PWB parts layout (Top side)



LFa Sn-Ag-Cu

The TEL/LIU PWB of the model employs lead-free solder.

3. TEL/LIU PWB parts layout (Bottom side)

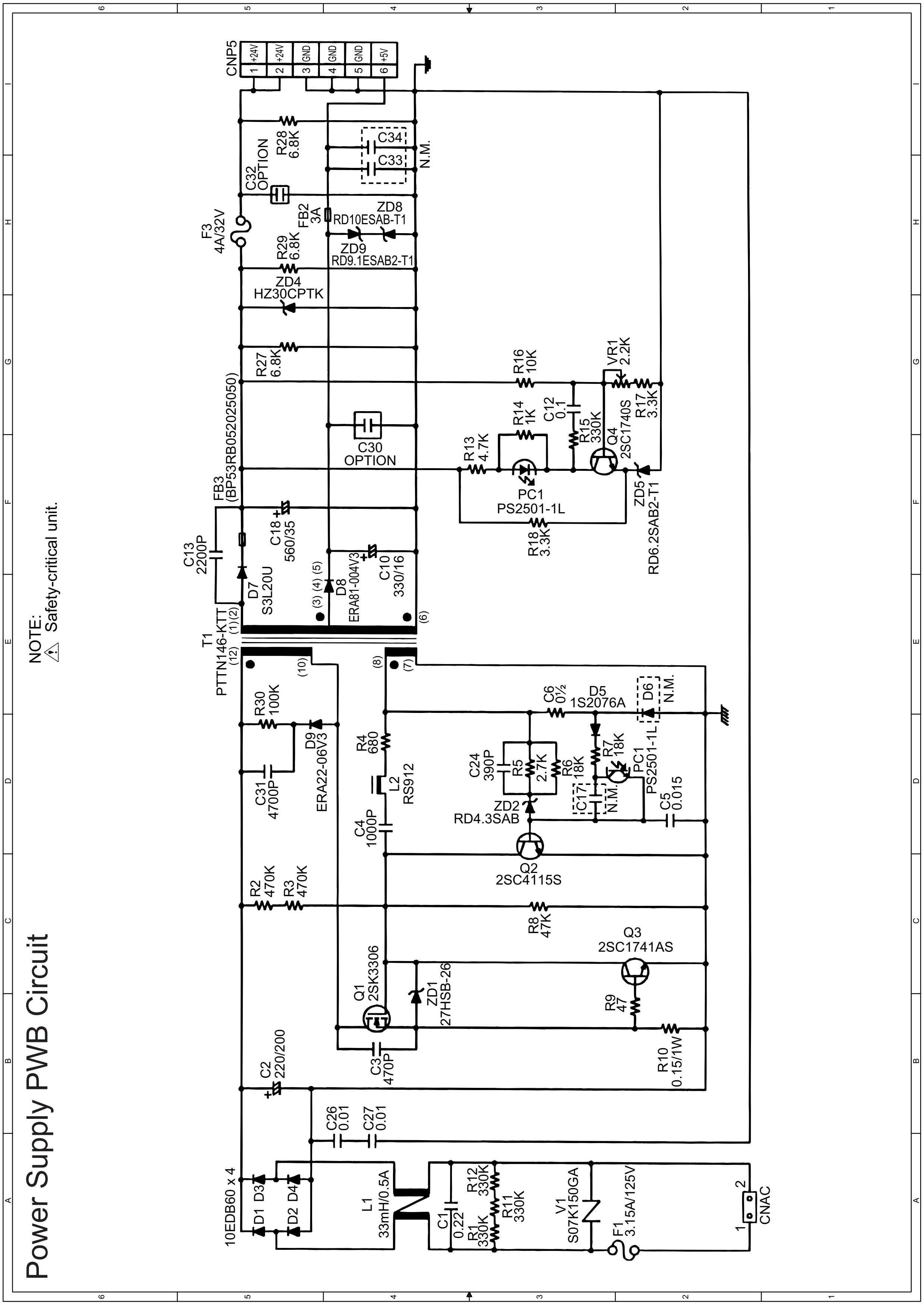


LFa
Sn-Ag-Cu

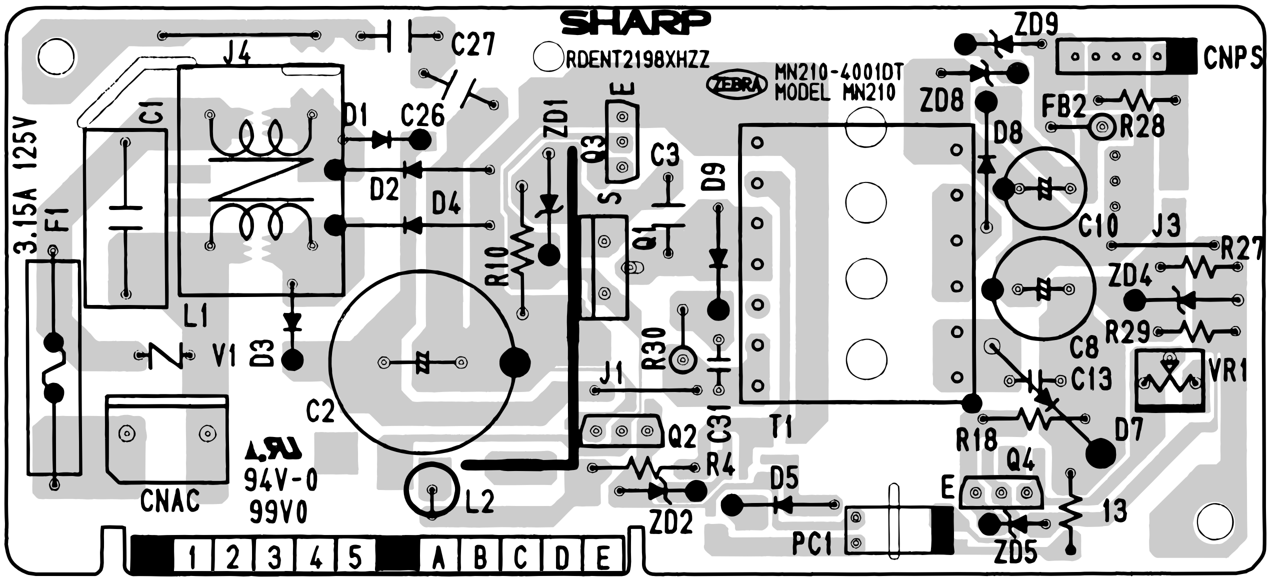
The TEL/LIU PWB of the model employs lead-free solder.

[3] Power supply PWB circuit

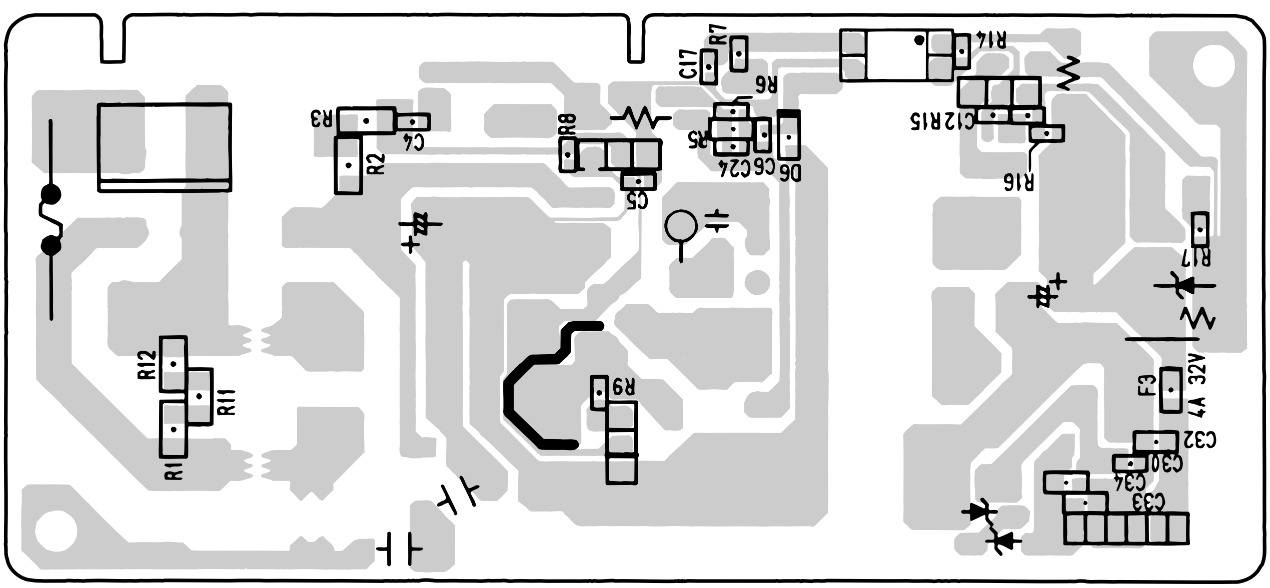
1. Power supply PWB circuit



2. Power supply PWB parts layout (Top side)

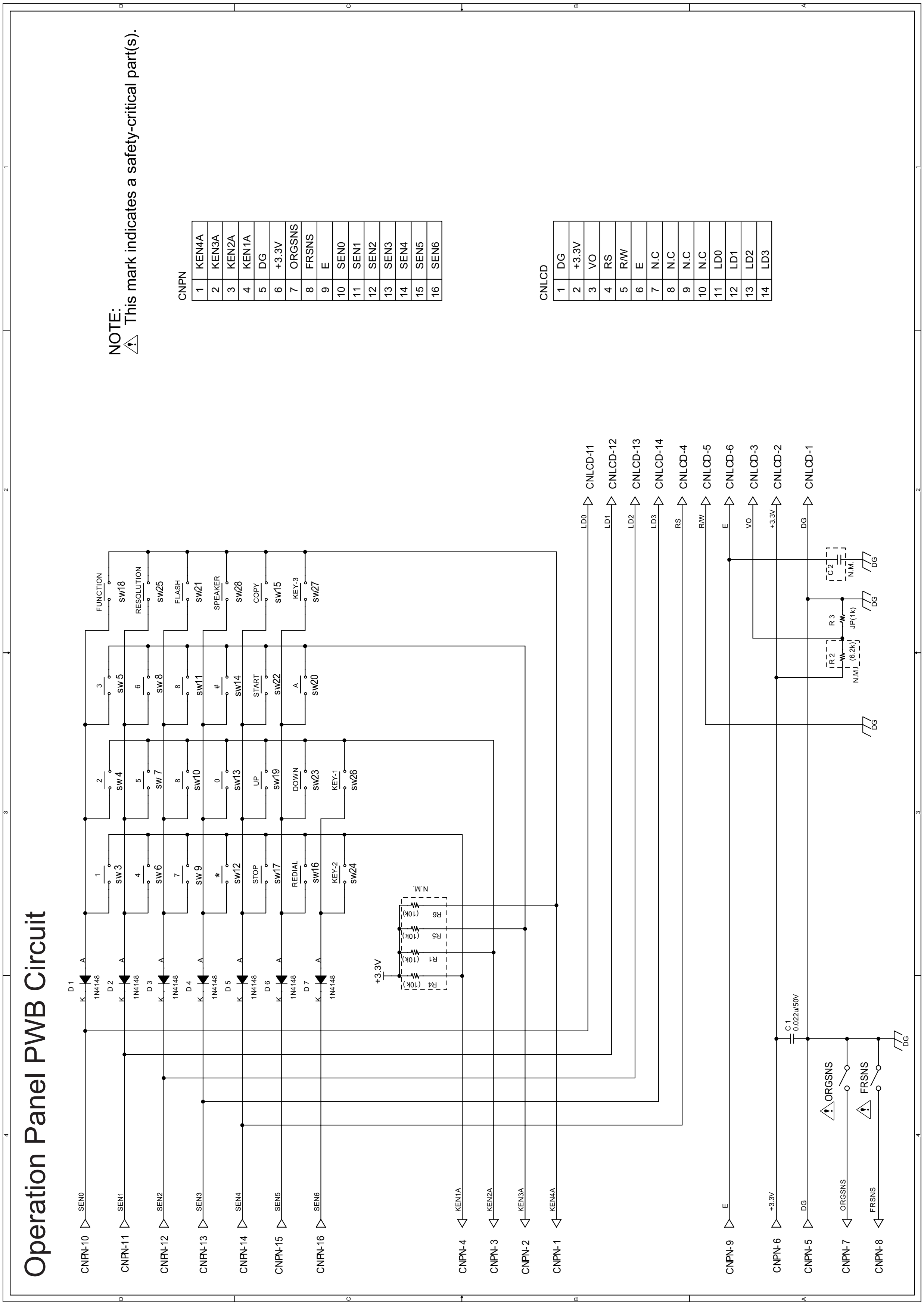


3. Power supply PWB parts layout (Bottom side)



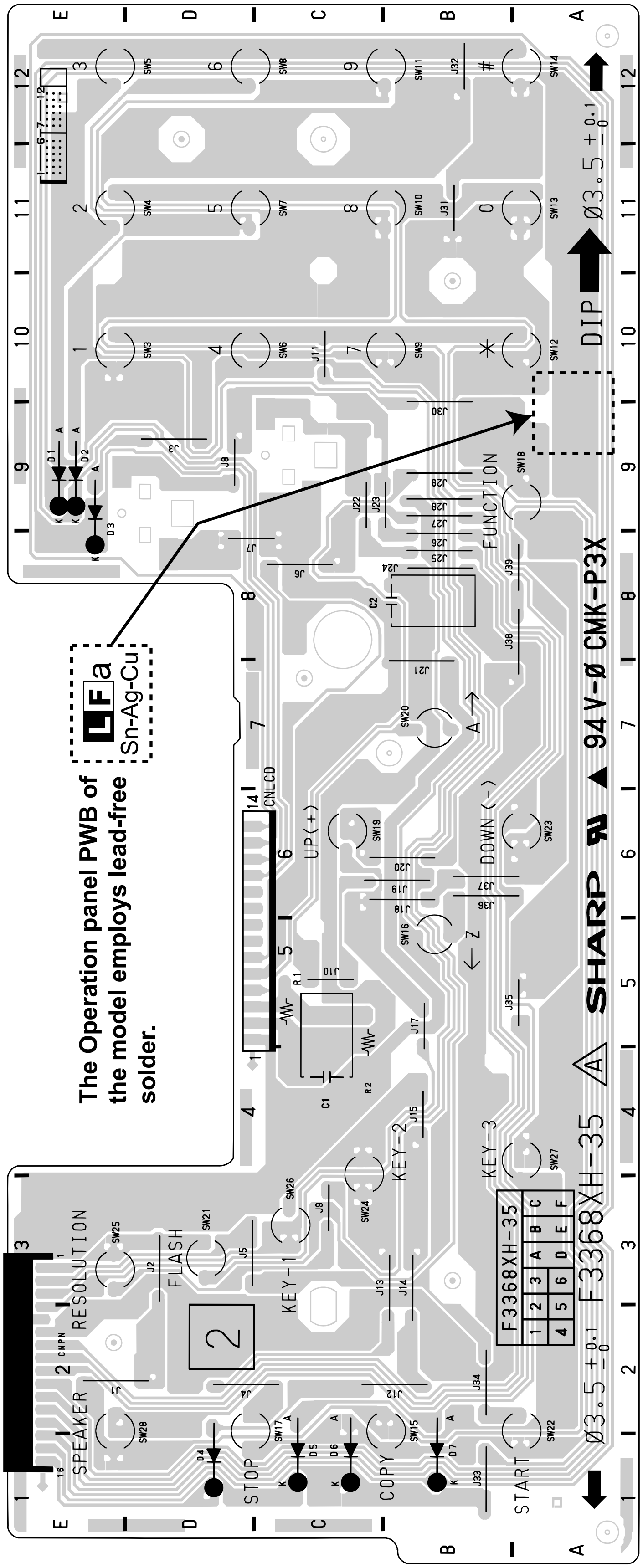
[4] Operation Panel PWB circuit

1. Operation Panel PWB circuit



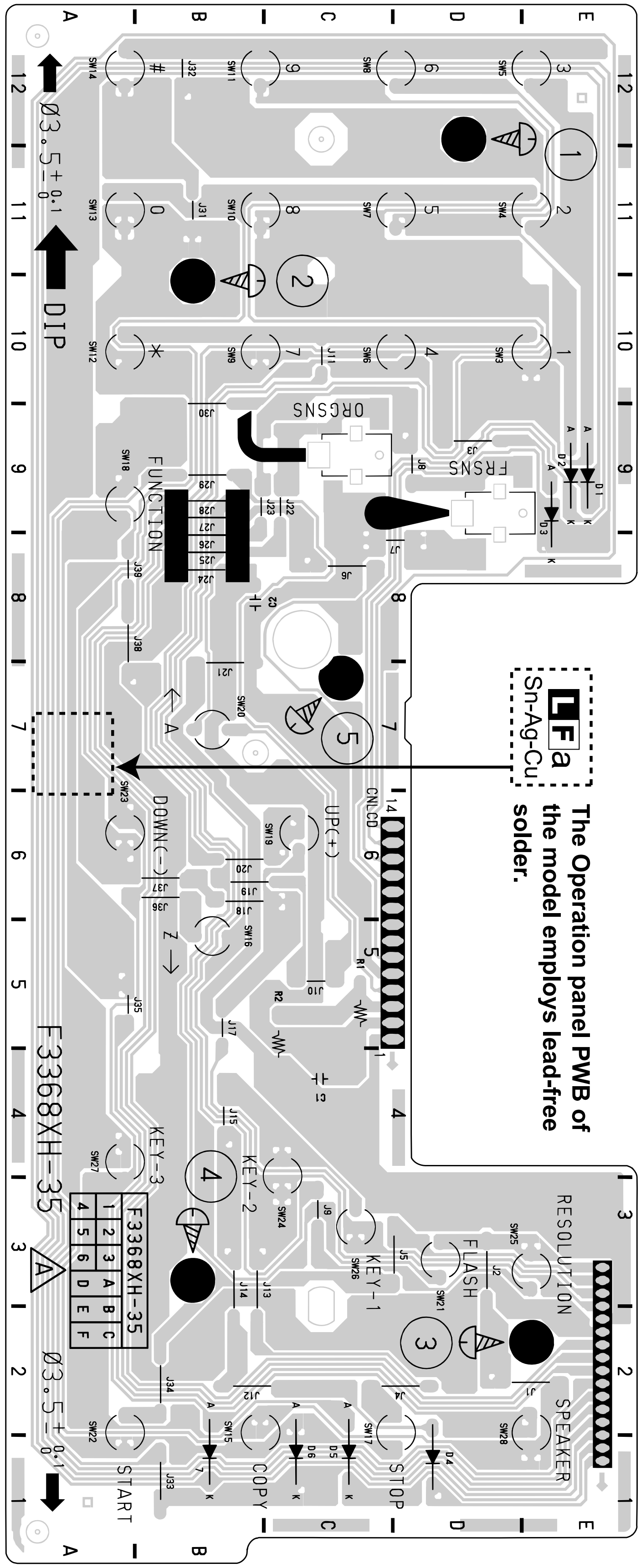
2. Operation panel PWB parts layout (Top side)

- Since the parts of PWB cannot be supplied, change it as a unit.



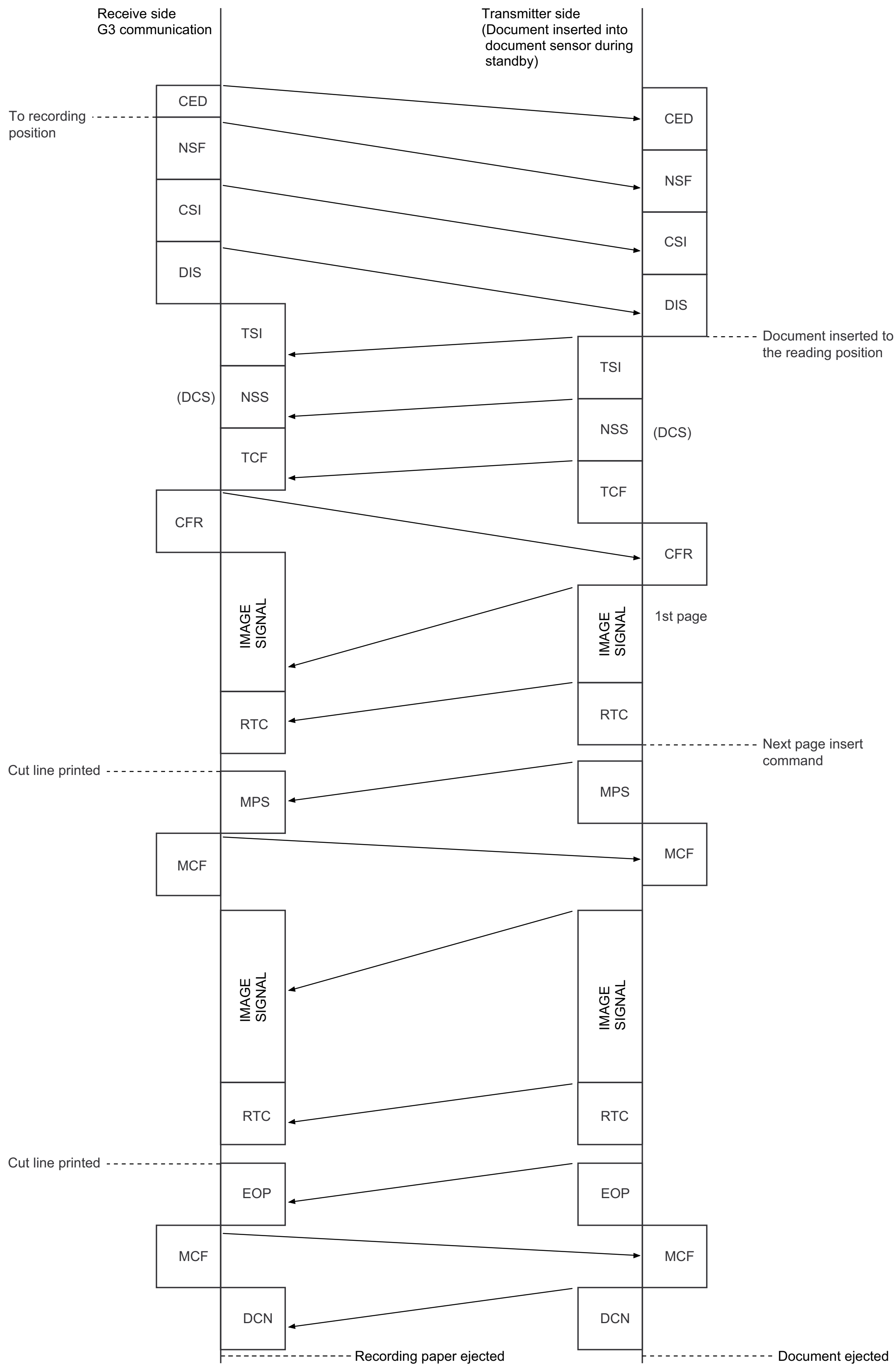
3. Operation panel PWB parts layout (Bottom side)

- Since the parts of PWB cannot be supplied, change it as a unit.

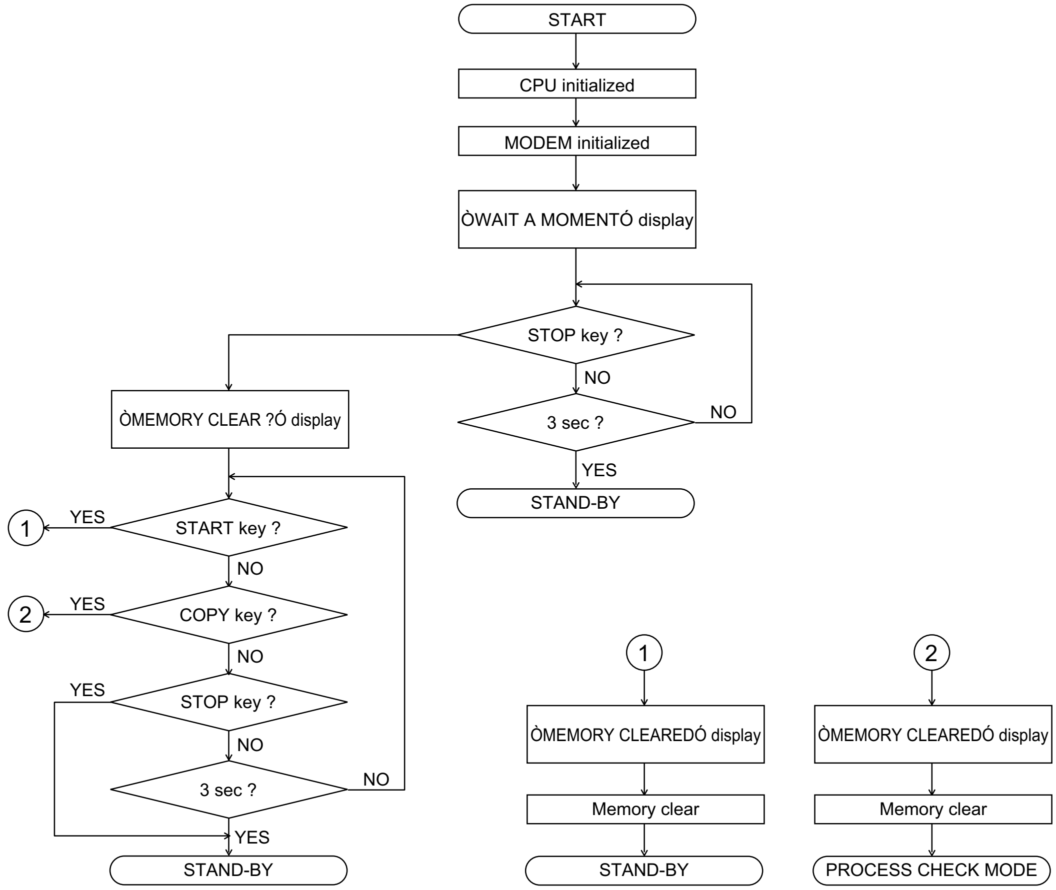


CHAPTER 7. OPERATION FLOWCHART

[1] Protocol



[2] Power on sequence



CHAPTER 8. OTHER

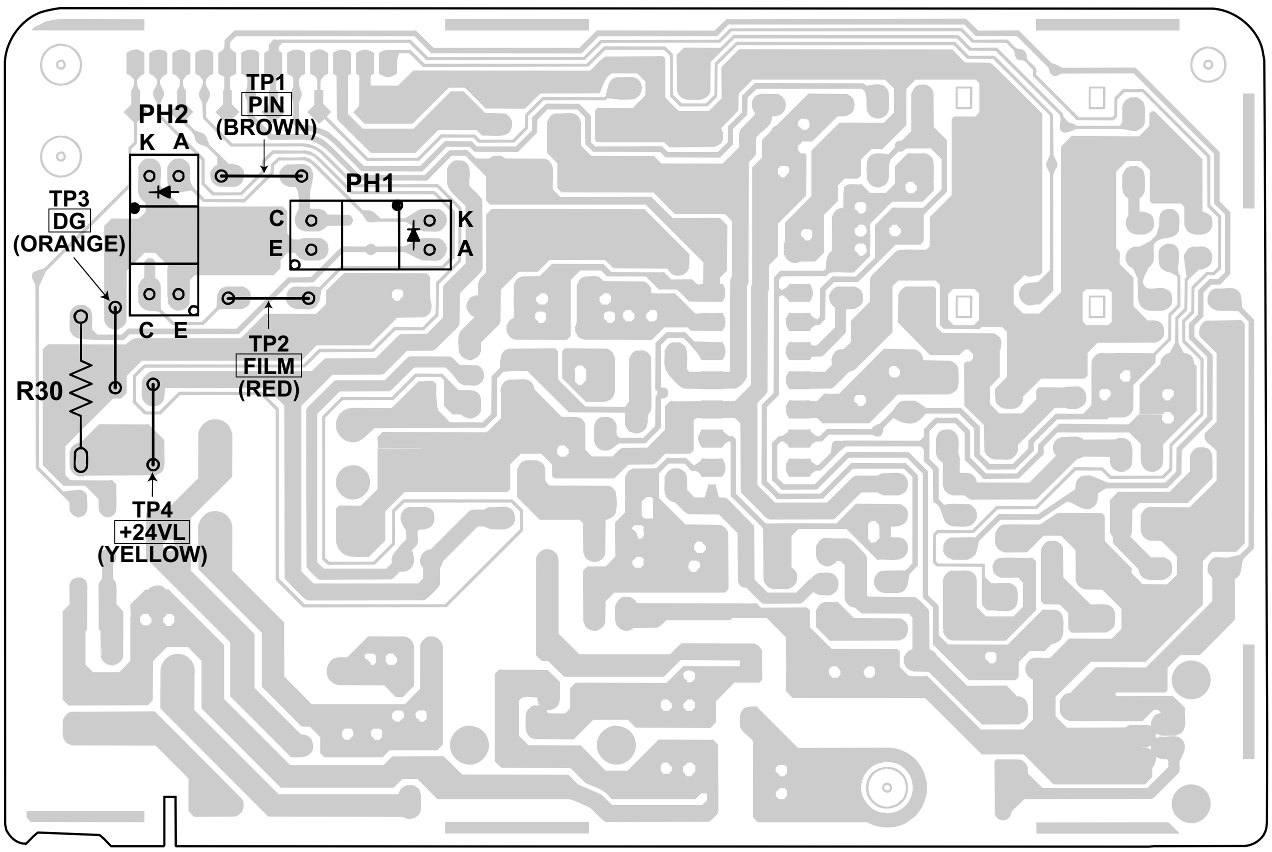
[1] Service tools

1. List

NO.	PARTS CODE	DESCRIPTION	Q'TY	PRICE RANK
1	CPWBF3201SCS1	Extension board unit (TEL/LIU PWB)	1	BA
2	PSHEZ3579SCZZ	Shading wave memory standard paper	1	AD

1.1. Extension board unit

TEL/LIU PWB



NO.	PARTS CODE	DESCRIPTION	Q'TY	PRICE RANK
1	QCNWG471BSCZZ	SPEAKER RELAY CABLE	1	AN
2	QCNWG206BSCZZ	PANEL RELAY CABLE	1	AT
3	QCNWG202BSCZZ	CIS RELAY CABLE	1	AN
4	QCNWG205BSCZZ	HEAD RELAY CABLE	1	AS
5	QCNWG204BSCZZ	CAM SWITCH RELAY CABLE	1	AG
6	QCNWG242BSCZZ	MOTOR RELAY CABLE	1	AM
7	QCNWG201BSCZZ	SENSOR RELAY CABLE	1	BB
8	VRS-RE3AA122J	RESISTOR (1W 1.2KΩ ±5%)[R30]	1	AC
9	VHPSG206S//-1	PHOTO TRANSISTOR [PH1]	1	AG
10	VHPSG206S//-1	PHOTO TRANSISTOR [PH2]	1	AG

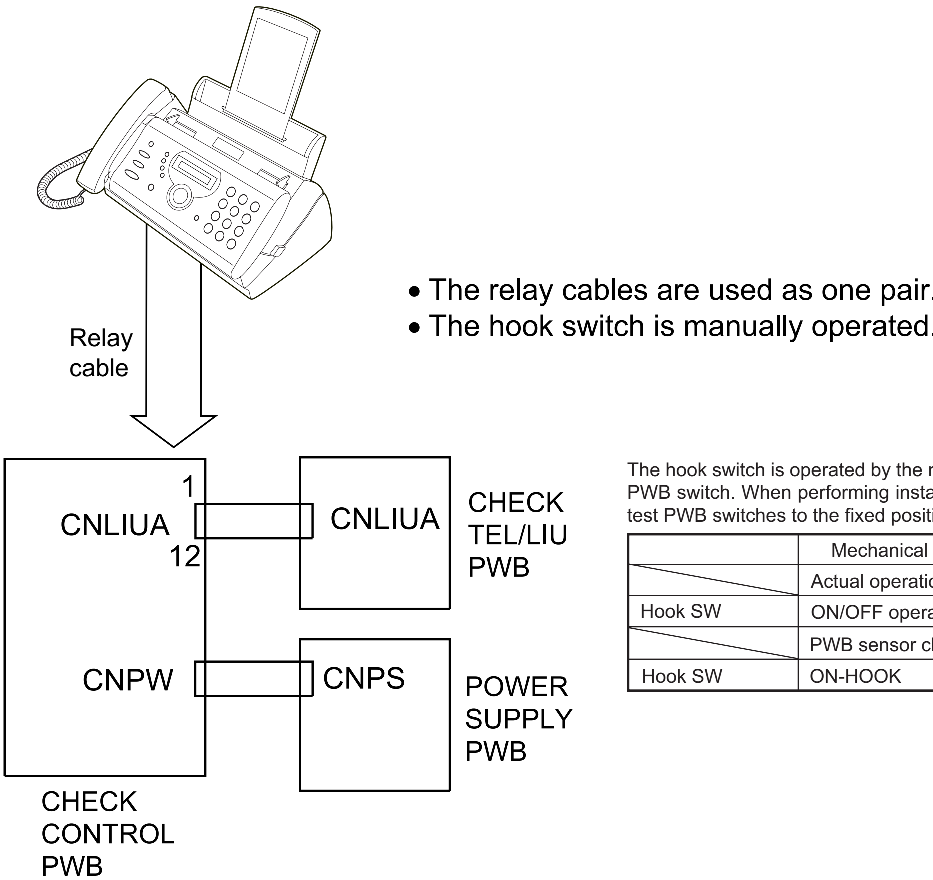
2. Relay board unit

2.1. Relay board unit

1. Remove the TEL/LIU, Control PWB and Power Supply PWB from this unit, and mount the board unit instead.

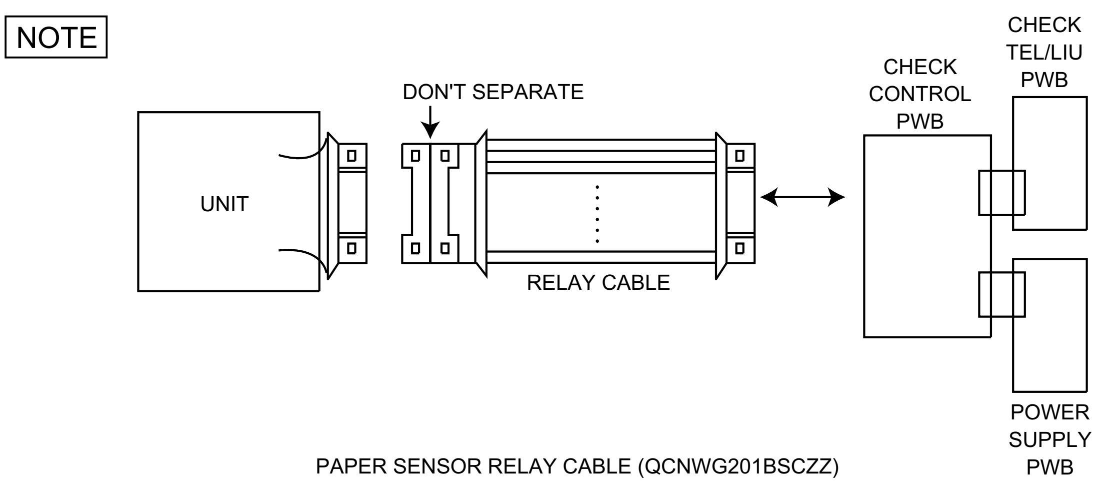
   Before connecting the wiring to the relay board unit, set the test PWB switches to the fixed position.

2. The setting is as follows.

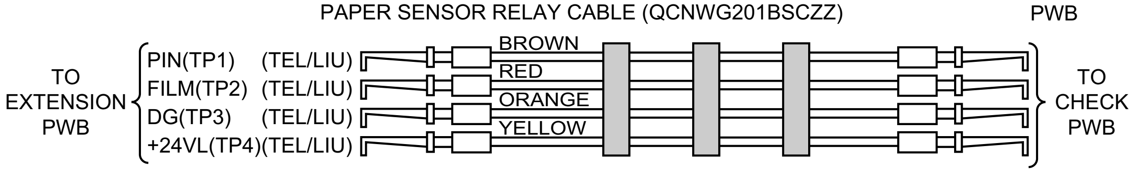


The hook switch is operated by the mechanical unit switch and the test PWB switch. When performing installation in the machine unit, set the test PWB switches to the fixed position.

	Mechanical unit	PWB to be tested
	Actual operation with mechanical unit	
Hook SW	ON/OFF operation	ON-HOOK
	PWB sensor check	
Hook SW	ON-HOOK	ON/OFF operation



PAPER SENSOR RELAY CABLE (QCNWG201BSCZZ)



3. Shading paper

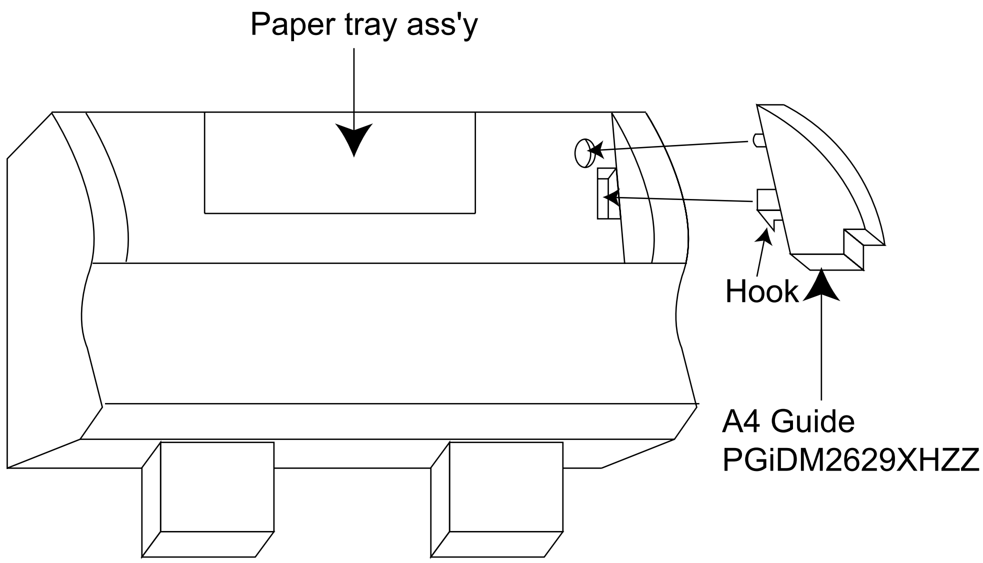
- The white and black basis is applied to remember the shading waveform. Be sure to perform this operation when replacing the battery or replacing the control PWB. Execute in the shading mode of DIAG mode.

SHADING WAVE MEMORY STANDARD PAPER (PSHEZ3579SCZZ)

[2] Changing the record paper size

1. How to change the A4 size and letter size of the record papers

1) It becomes the record paper of the A4 size by installing A4 guide (PGiDM2629XHZZ)
   which shows in the drawing. Remove A4 guide when you use the record paper of the letter size.



2) Set soft switch SW-L2 No.1 and the initialization of SW-L2 No.2 as follows.

SW NO.	DATA NO.	ITEM	Switch setting and function				Initial setting	Remarks
			1		0			
SW		Paper set size		LETTER	LEGAL	A4		OPTION
I	1		No. 1	0	0	1	0	
L2	2		No. 2	0	1	0	0	

- MEMO -

SHARP PARTS GUIDE

MODEL UX-P115

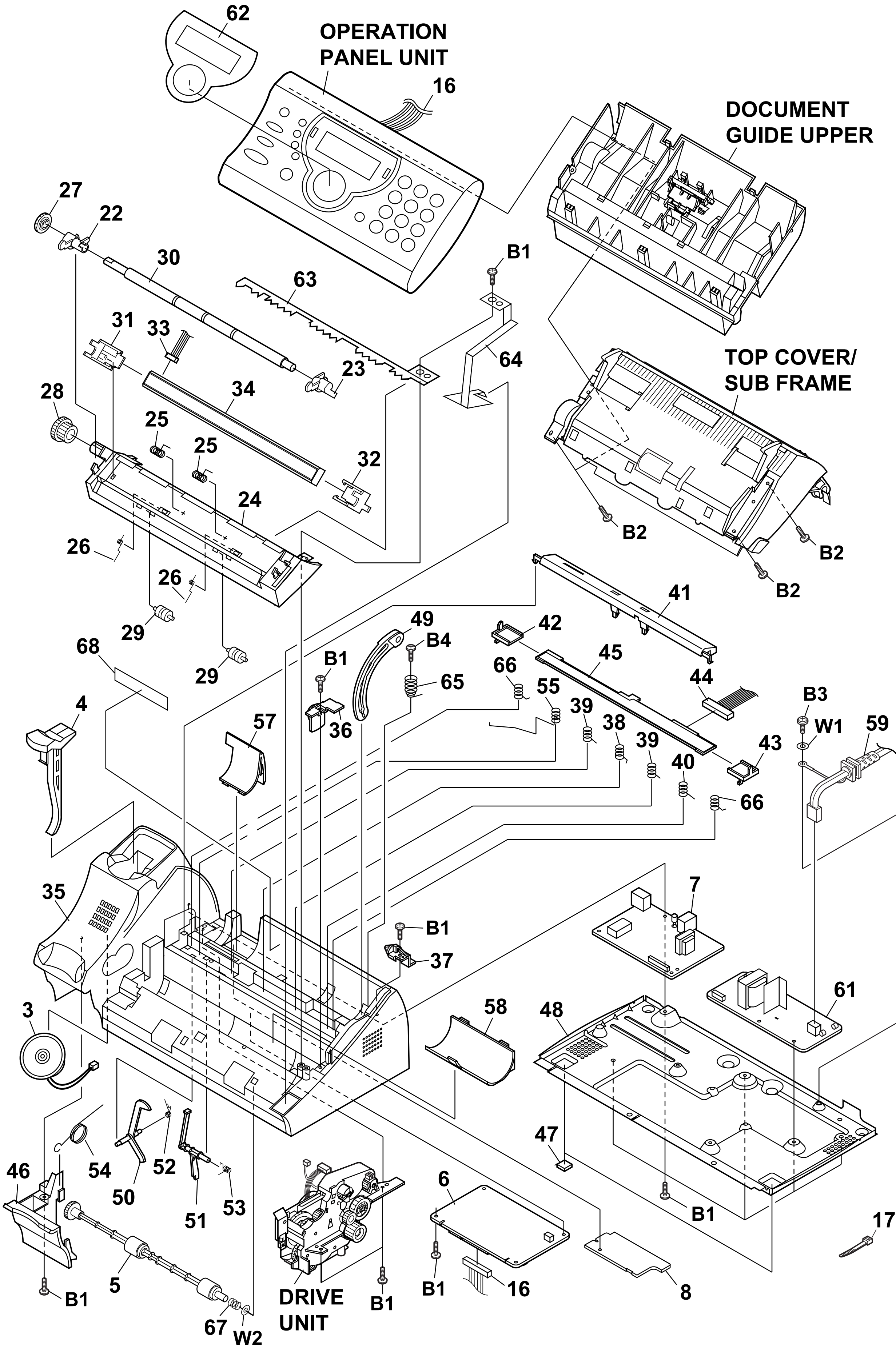
MODEL	SELECTION CODE	DESTINATION
UX-P115	U	U.S.A.

CONTENTS

Parts marked with "⚠" are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

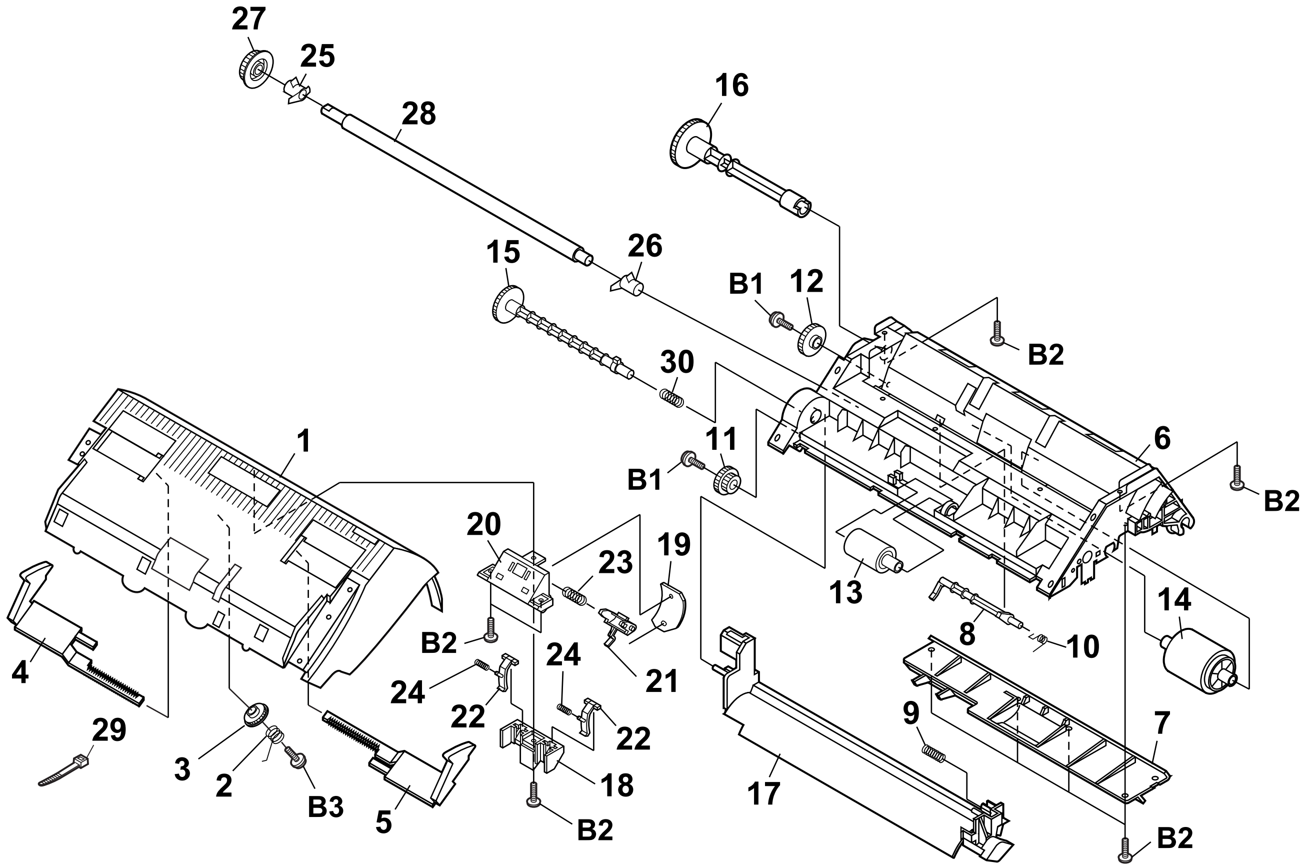
SHARP CORPORATION

[1] Cabinet,etc.



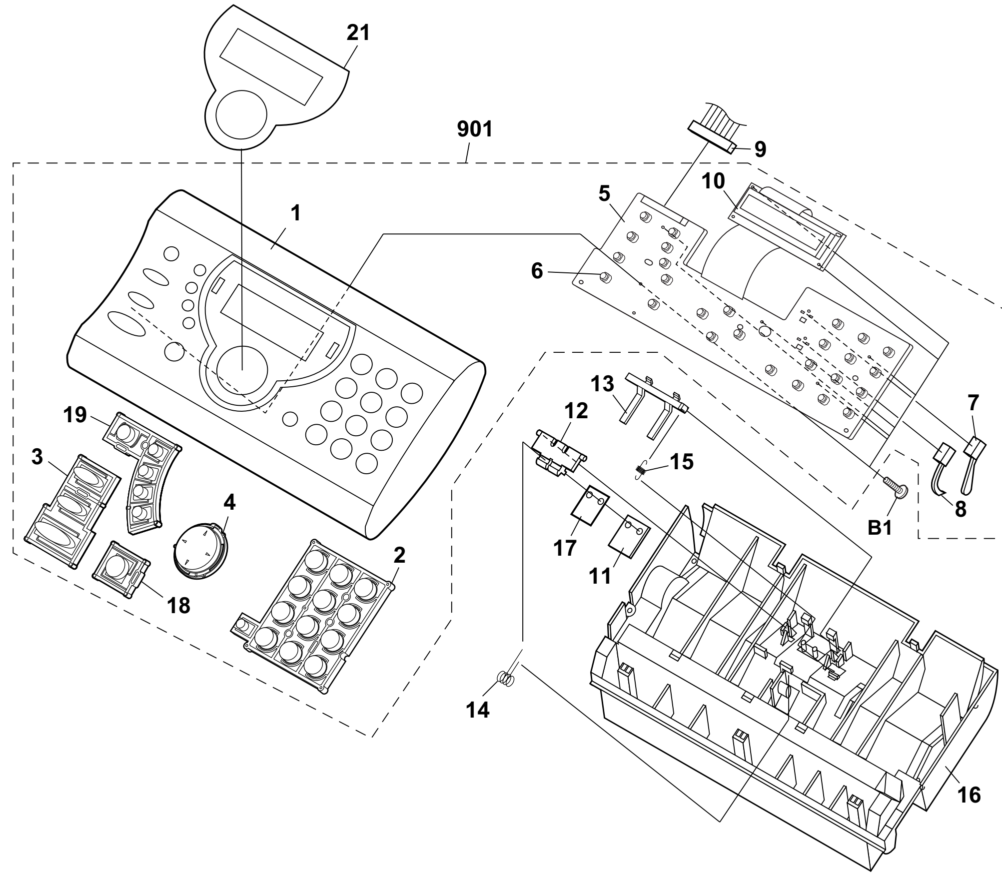
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[1] Cabinet,etc.					
3	CCNWN395BXH01	AP		C	Speaker ass'y
4	CLEVP2358XH01	AD		C	Hook switch lever ass'y
5	CROLR2481XH01	AQ		C	PO roller ass'y
6	DCEKC688TXHZZ	BT	N	E	Control PWB unit(Within ROM)
7	DCEKL477CXH02	BG		E	TEL/LIU PWB unit
8	QPWBF3368XHZ2	AQ		E	Wire holder(PWB only)
16	QCNWN399BXHZZ	AP		C	Panel cable
17	LBNDJ2006XHZZ	AA		C	Band(100mm)
22	LBSHP2140XHZA	AC		C	Back bearing,left
23	LBSHP2143XHZZ	AC		C	Back bearing,right
24	LFRM-2225XHVA	AP		C	Scanner frame
25	MSPRC3295XHZZ	AB		C	CIS spring
26	MSPRD3379XHZZ	AD		C	PO pinch roller spring
27	NGERH2569XHZZ	AC		C	Back gear
28	NGERH2570XHZZ	AD		C	Reduction gear,21/37Z
29	NROLP2332XHZZ	AD		C	PO pinch roller
30	NROLR2482XHZZ	AR		C	Back roller
31	PGiDM2617XHZZ	AD		C	CIS guide,left
32	PGiDM2618XHZZ	AD		C	CIS guide,right
33	QCNWN419BXHZZ	AL		C	CIS cable
34	RUNTZ2127XHZZ		N	B	CIS unit
35	GCABB2393XHSH	AZ		D	Lower cabinet
36	LHLDZ2227XHZZ	AD		C	Ink ribbon spool 1
37	LHLDZ2228XHZZ	AD		C	Ink ribbon spool 2
38	MSPRC3287XHZZ	AB		C	Head spring A
39	MSPRC3288XHZZ	AB		C	Head spring B
40	MSPRC3340XHZA	AD		C	Head spring C
41	PCOVP2130XHZZ	AE		C	Head cover
42	PGiDM2615XHZZ	AD		C	Head guide,left
43	PGiDM2616XHZZ	AD		C	Head guide,right
44	QCNWN486AXHZZ	AM		C	Head cable
45	RHEDZ2065XHZZ	BP		B	Thermal head
46	GCOVA2447XHVA	AL		D	Front cover
47	GLEGG2078XHZZ	AD		C	Rubber leg
48	LPLTM3178XHZZ	AF		C	Bottom plate
49	LPLTP3177XHZZ	AD		C	Stopper plate
50	MLEVP2357XHZZ	AD		C	Film sensor lever
51	MLEVP2356XHZA	AD		C	P-IN sensor lever,lower
52	MSPRD3286XHZA	AB		C	Film sensor lever spring
53	MSPRD3285XHZZ	AB		C	P-IN sensor lever spring,lower
54	MSPRD3291XHZZ	AD		C	Speaker hold spring
55	MSPRD3292XHZA	AB		C	Head earth spring
57	PCOVP2131XHVA	AG		C	Panel cable cover
58	PCOVP2132XHZZ	AD		C	Control PWB cover
⚠ 59	QACCD2090XHZZ	AS	N	B	AC cord ass'y
⚠ 61	RDENT2198XHZZ	BG		E	Power supply PWB unit
62	HPNLH2420XHSN	AM	N	D	Decoration panel
63	PBRS-2055XHZZ	AN		C	Static brush
64	PSHEZ3687XHZZ	AD		C	Earth sheet
65	MSPRD3341XHZZ	AD		C	Up spring
66	MSPRC3346XHZZ	AD		C	Head spring D
67	MSPRC3357XHZZ	AD		C	PO roller spring
68	TLABH498FXHZZ	AH		D	Imaging film set label
B1	XEBSD30P10000	AA		C	Screw(3x10)
B2	XEBSD30P12000	AA		C	Screw(3x12)
B3	LX-BZ2282XHZZ	AB		C	Screw(4x6)
B4	XEPSD30P08000	AA		C	Screw(3x8)
W1	XWHSN40-08100	AA		C	Washer
W2	LX-WZ2290XHZZ	AE		C	Washer

[2] Top cover/Sub frame



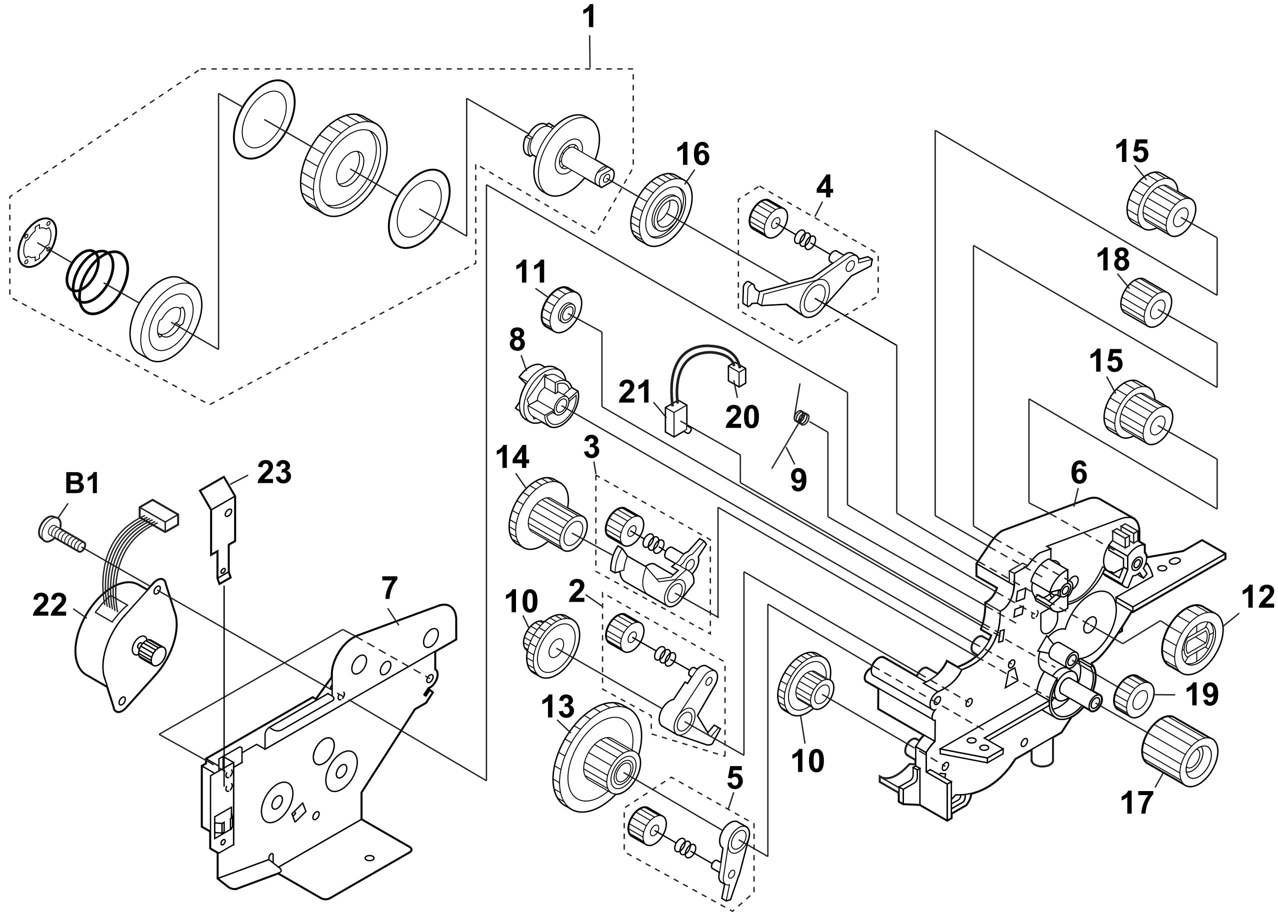
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[2] Top cover/Sub frame					
1	GCOVA2448XHVA	AX		C	Top cover
2	MSPRC3301XHZZ	AB		C	Hopper spring
3	NGERP2318XHZZ	AD		C	Pinion gear
4	PGiDM2619XHVA	AG		C	Hopper guide,left
5	PGiDM2620XHVA	AG		C	Hopper guide,right
6	LFRM-2227XHZZ	AQ		C	Sub frame
7	LFRM-2232XHZZ	AT		C	Sub frame plate
8	MLEVP2363XHZZ	AD		C	P-IN sensor lever,upper
9	MSPRC3305XHZZ	AB		C	Release lever spring
10	MSPRD3302XHZZ	AB		C	P-IN sensor lever spring,upper
11	NGERH2580XHZZ	AC		C	Reduction gear,15/22Z
12	NGERH2581XHZZ	AC		C	Idler gear,25Z
13	NROLR2483XHZZ	AL		C	Paper feed roller
14	NROLR2504XHZZ	AL		C	PU roller
15	NSFTP2357XHZZ	AG		C	Paper feed roller shaft
16	NSFTP2374XHZZ	AG		C	PU roller shaft
17	PGiDM2621XHSA	AF		C	Release lever
18	LHLDZ2224XHZZ	AL		C	RP feed plate holder
19	LPLTG3181XHZZ	AD		C	RP separate rubber
20	LPLTP3179XHZZ	AD		C	RP separate base
21	LPLTP3180XHZZ	AH		C	RP separate plate
22	LPLTP3182XHZZ	AH		C	RP feed plate
23	MSPRC3299XHZZ	AB		C	RP separate spring
24	MSPRC3300XHZZ	AB		C	RP feed spring
25	LBSHP2148XHZA	AE		C	Platen bearing,left
26	LBSHP2149XHZA	AE		C	Platen bearing,right
27	NGERH2579XHZA	AE		C	Platen gear
28	NROLR2485XHZZ	AQ		C	Platen roller
29	LBNDJ2006XHZZ	AA		C	Band
30	MSPRC3335XHZZ	AD		C	Paper feed roller spring
B1	LX-BZ2234XHZZ	AD		C	Screw
B2	XEBSD30P10000	AA		C	Screw(3x10)
B3	LX-BZ2222XHZZ	AC		C	Screw

[3] Upper cabinet/Document guide upper



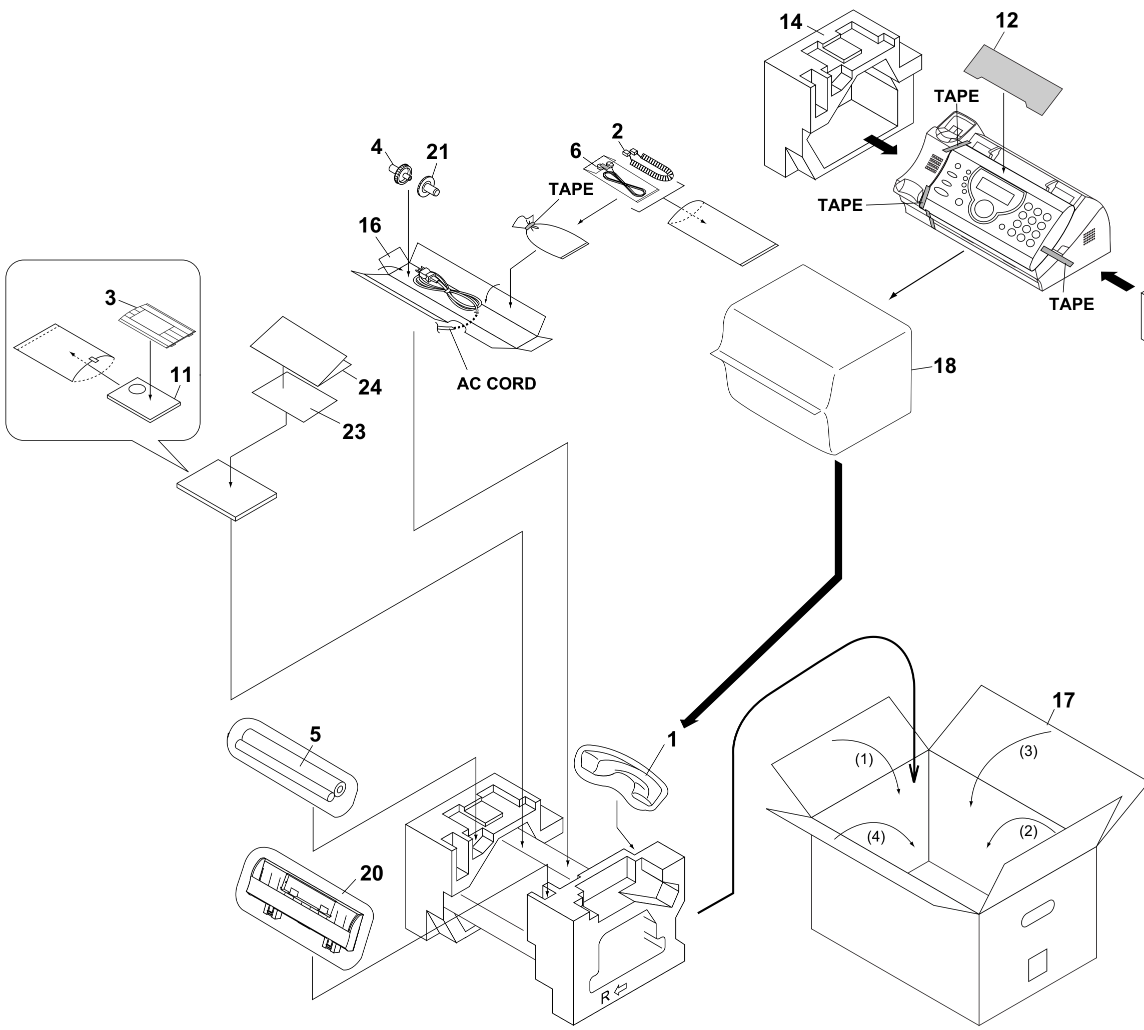
NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[3] Upper cabinet/Document guide upper					
1	GCASP2173XHSA	BA		D	Panel case
2	JBTN-2357XHSB	AK		C	12 key
3	JBTN-2359XHSD	AQ		C	Start key
4	JBTN-2358XHSC	AP		C	Function key
5	DCEKP478CXH02	BG		E	Operation panel PWB unit
6	QSW-Q2331XHZZ	AE		C	Tact switch [SW]
⚠ 7	QSW-M2246AXZZ	AH		C	FRSNS sensor
⚠ 8	QSW-M2294XHZZ	AE		C	ORGSNS sensor
9	QCNWN399BXHZZ	AP		C	Panel cable
10	RUNTZ2127XH01	BC	N	E	LCD unit
11	LPLTG2911XHZZ	AE		C	Separate rubber
12	LPLTP3175XHZZ	AD		C	Separate plate
13	LPLTP3176XHZZ	AD		C	Feed plate
14	MSPRD3293XHZZ	AB		C	Separate spring
15	MSPRT3294XHZZ	AB		C	Feed spring
16	PGiDM2614XHSA	AL		C	Document guide upper
17	PSHEP3660XHZZ	AE		C	Separate rubber sheet
18	JBTN-2360XHSC	AH		C	Speed key
19	JBTN-2361XHSD	AM		C	Function 2 key
21	HPNLH2420XHSN	AM	N	D	Decoration panel
B1	XEBSD20P06000	AA		C	Screw(2x6)
	(Unit)				
901	DCEKP480CXH02	BG		E	Operation panel unit

[4] Drive unit



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[4] Drive unit					
1	CGERH2314XH05	AS	N	C	Slip gear ass'y
2	CLEVP2359XH01	AD		C	Planet gear lever ass'y A
3	CLEVP2360XH01	AD		C	Planet gear lever ass'y B
4	CLEVP2361XH01	AD		C	Planet gear lever ass'y C
5	CLEVP2362XH01	AD		C	Planet gear lever ass'y D
6	LFRM-2226XHZZ	AQ		C	Drive unit frame
7	LPLTM3190XHZZ	AG		C	Motor plate
8	MCAMP2028XHZZ	AE		C	Cam
9	MSPRD3298XHZZ	AE		C	Cam hold spring
10	NGERH2380XHZZ	AC		C	Reduction gear,17/36Z
11	NGERH2409XHZZ	AB		C	Idler gear,23Z
12	NGERH2571XHZZ	AD		C	Slip gear
13	NGERH2572XHZZ	AD		C	Reduction gear,25/63Z
14	NGERH2573XHZZ	AD		C	Reduction gear,20/40Z
15	NGERH2574XHZZ	AD		C	Reduction gear,15/30Z
16	NGERH2575XHZZ	AD		C	Idler gear,40Z
17	NGERH2576XHZZ	AD		C	Idler gear,21Z
18	NGERH2577XHZZ	AD		C	Idler gear,20Z
19	NGERH2582XHZZ	AC		C	Idler gear,15Z
20	QCNWN483AXHZZ	AD		C	Cam switch cable
21	QSW-F2224SCZZ	AE		C	Cam switch
22	RMOTS2175XHZZ	AX		B	Motor
23	MSPRP3297XHZZ	AD		C	Earth spring
B1	XEBSD30P08000	AA		C	Screw(3x8)

[5] Packing material & Accessories



NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[5] Packing material & Accessories					
1	DUNTK497CXHFW	AY		E	Handset
⚠ 2	QCNWG209BXHOW	AH		C	Handset cord
3	CPLTP3222XHR2	AQ		C	Paper tray extension ass'y
4	NGERH2568XHZZ	AB		C	Imaging film gear
5	PRBNN2038SC10	AL		S	Imaging film(Initial starter film 10m)
⚠ 6	QCNWG370BXHZZ	AL		C	Telephone line cord
11	TiNSE4463XHTZ	BC	N	D	Operation manual
12	TCADZ3745XHZZ	AL	N	D	Pop card
14	SPAKA465CXHZZ	AF		D	Packing add.,left
15	SPAKA466CXHZZ	AF		D	Packing add.,right
16	SPAKA467CXHZZ	AD		D	Packing add.,accessories
17	CPAKC271GXH01	AV	N	D	Packing case with label
18	SPAKP329DXHZZ	AF		D	Vinyl cover
20	CPLTP3183XHRF	AV		C	Paper tray ass'y
21	CGERH2566XH01	AG		C	Imaging film gear ass'y
23	TCADZ2891XHZZ	AF		D	Registration card
24	TCADZ3744XHZZ	AL	N	D	Setup guide
[6] Control PWB unit					
1	UBATL2049SCZZ	AF		B	Battery(CR2032T23) [BAT1]
2	VCEAGA0JW227M	AD		C	Capacitor(6.3WV 220μ F) [C1]
3	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μ F) [C2]
4	VCEAGA0JW227M	AD		C	Capacitor(6.3WV 220μ F) [C3]
5	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μ F) [C4]
6	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μ F) [C5]
7	VCEAGA1EW476M	AA		C	Capacitor(25WV 47μ F) [C6]
8	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μ F) [C8]
9	VCEAGA1HW106M	AA		C	Capacitor(50WV 10μ F) [C9]
10	VCEAGA1HW226M	AB		C	Capacitor(50WV 22μ F) [C10]
11	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C104]
12	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C105]
13	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C107]
14	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C108]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
[6] Control PWB unit					
15	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C109]
16	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C110]
17	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C111]
18	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C112]
19	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C113]
20	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C114]
21	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C115]
22	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C116]
23	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C117]
24	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C118]
25	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C119]
26	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF) [C120]
27	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C121]
28	VCCCCY1HH330J	AA		C	Capacitor(50WV 33PF) [C122]
29	VCCCCY1HH150J	AB		C	Capacitor(50WV 15PF) [C123]
30	VCKYCY1HB103K	AA		C	Capacitor(50WV 0.01μF) [C126]
31	VCKYCY1HB472K	AA		C	Capacitor(50WV 4700PF) [C127]
32	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C128]
33	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C129]
34	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C130]
35	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C131]
36	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C132]
37	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF) [C133]
38	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C134]
39	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C135]
40	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C136]
41	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C137]
42	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C139]
43	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C140]
44	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C141]
45	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C142]
46	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C143]
47	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C144]
48	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C145]
49	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C146]
50	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C147]
51	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF) [C148]
52	VCCCCY1HH220J	AA		C	Capacitor(50WV 22PF) [C149]
53	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C154]
54	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C155]
55	VCKYCY1AB105K	AB		C	Capacitor(10WV 1μF) [C157]
56	VCKYCY1AB105K	AB		C	Capacitor(10WV 1μF) [C159]
57	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C160]
58	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C161]
59	VCKYCY1AF105Z	AC		C	Capacitor(10WV 1μF) [C162]
60	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C163]
61	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C167]
62	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C168]
63	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C169]
64	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C171]
65	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF) [C172]
66	VCKYCY1AB105K	AB		C	Capacitor(10WV 1μF) [C175]
67	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%) [C176]
68	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF) [C177]
69	VCKYCY1CB104K	AB		C	Capacitor(16WV 0.1μF) [C178]
70	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C182]
71	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C183]
72	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C184]
73	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C185]
74	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C186]
75	VCCCCY1HH101J	AA		C	Capacitor(50WV 100PF) [C187]
76	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C188]
77	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C189]
78	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF) [C194]
79	VCKYCY1HB471K	AB		C	Capacitor(50WV 470PF) [C199]
80	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μF) [C200]
81	QCNCM2666XH0G	AE		C	Connector(7pin) [CNCIS]
82	QCNCM7014SC0B	AD		C	Connector(2pin) [CNCSW]
83	QCNCM2508SC1B	AF		C	Connector(12pin) [CNLIUA]
84	QCNCM7014SC0F	AB		C	Connector(6pin) [CNMT]
85	QCNCM2666XH1F	AF		C	Connector(16pin) [CNPN]
86	QCNCM7014SC0C	AA		C	Connector(3pin) [CNPRG]
87	QCNCM2638SC0F	AE		C	Connector(6pin) [CNPW]
88	QCNCM2666XH0C	AD		C	Connector(3pin) [CNSP]
89	QCNCM7014SC1E	AC		C	Connector(15pin) [CNTH]
90	VHDHRW0202B-1	AD		B	Diode(HRW0202B) [D100]
91	VHD1SS355//-1	AB		B	Diode(1SS355) [D101]
92	VHD1SS355//-1	AB		B	Diode(1SS355) [D102]
⚠ 93	QFS-L1037YCZZ	AD		A	IC protector(KAB3202) [FU100]
94	VHiF002/TC89B	BD	N	B	IC,FLASH ROM(2MB)(Ver.:TC89B) [IC1]
95	RH-iX2321XHZZ	AX		B	IC(IS41LV85125) [IC2]
96	VHiSCE209//-1	BH		B	IC(SCE209) [IC3]
97	VHiNJM2113M-1	AG		B	IC(NJM2113M) [IC4]
98	RH-iX2356XHZZ	AL		B	IC(ULN2001A) [IC5]
99	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%) [L100]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[6] Control PWB unit						
100	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[L102]
101	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[L103]
102	VRS-CY1JB150J	AA		C	Resistor(1/16W 15Ω ± 5%)	[L104]
103	VS2SA1530AS-1	AC		B	Transistor(2SA1530AS)	[Q100]
104	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q101]
105	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q102]
106	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q103]
107	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q104]
108	VSSi4431BDY-1	AL	N	B	FET(SI4431BDY)	[Q107]
109	VSRT1P141C+-1	AB		B	Transistor(RT1P141C)	[Q108]
110	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q109]
111	VSRT1N141C/-1	AB		B	Transistor(RT1N141C)	[Q110]
112	VRS-CY1JB562J	AA		C	Resistor(1/16W 5.6KΩ ± 5%)	[R100]
113	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R101]
114	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R102]
115	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[R103]
116	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ± 5%)	[R104]
117	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ± 5%)	[R105]
118	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ± 5%)	[R106]
119	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R107]
120	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R111]
121	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R112]
122	VRS-CY1JB512J	AA		C	Resistor(1/16W 5.1KΩ ± 5%)	[R113]
123	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[R114]
124	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ± 5%)	[R116]
125	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R117]
126	VRS-CY1JB124J	AA		C	Resistor(1/16W 120KΩ ± 5%)	[R118]
127	VRS-CY1JB203J	AA		C	Resistor(1/10W 20KΩ ± 5%)	[R119]
128	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ± 5%)	[R120]
129	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R121]
130	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ± 5%)	[R124]
131	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R125]
132	VRS-CY1JB471J	AA		C	Resistor(1/16W 470Ω ± 5%)	[R126]
133	VRS-CY1JB105J	AA		C	Resistor(1/16W 1MΩ ± 5%)	[R127]
134	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R128]
135	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R129]
136	VRS-CY1JB301J	AA		C	Resistor(1/16W 300Ω ± 5%)	[R130]
137	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R131]
138	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R132]
139	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ± 5%)	[R133]
140	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[R134]
141	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R135]
142	VRS-CY1JB474J	AA		C	Resistor(1/16W 470KΩ ± 5%)	[R136]
143	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ± 5%)	[R137]
144	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ± 5%)	[R139]
145	VRS-CY1JB513J	AA		C	Resistor(1/16W 51KΩ ± 5%)	[R140]
146	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R141]
147	VRS-CY1JB106J	AA		C	Resistor(1/16W 10MΩ ± 5%)	[R142]
148	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R143]
149	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R144]
150	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1μ F)	[R145]
151	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R146]
152	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[R147]
153	VRS-CY1JB203J	AA		C	Resistor(1/16W 20KΩ ± 5%)	[R148]
154	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R149]
155	VRS-CY1JB223J	AA		C	Resistor(1/16W 22KΩ ± 5%)	[R151]
156	VRS-CY1JB222J	AA		C	Resistor(1/16W 2.2KΩ ± 5%)	[R152]
157	VRS-CY1JB392J	AA		C	Resistor(1/16W 3.9KΩ ± 5%)	[R154]
158	VRS-CY1JB105J	AA		C	Resistor(1/16W 1MΩ ± 5%)	[R156]
159	VRS-CY1JB752J	AA		C	Resistor(1/16W 7.5KΩ ± 5%)	[R157]
160	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R160]
161	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R161]
162	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R165]
163	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R166]
164	VRS-CY1JB393J	AA		C	Resistor(1/16W 39KΩ ± 5%)	[R167]
165	VRS-CY1JB124J	AA		C	Resistor(1/16W 120KΩ ± 5%)	[R168]
166	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R169]
167	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R170]
168	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ± 5%)	[R171]
169	VRS-CY1JB151J	AA		C	Resistor(1/16W 150Ω ± 5%)	[R172]
170	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[R173]
171	VRS-CY1JB101J	AA		C	Resistor(1/16W 100Ω ± 5%)	[R174]
172	VRS-CY1JB271J	AA		C	Resistor(1/16W 270Ω ± 5%)	[R175]
173	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R176]
174	VRS-CY1JB103J	AA		C	Resistor(1/16W 10KΩ ± 5%)	[R177]
175	VRS-CY1JB104J	AA		C	Resistor(1/16W 100KΩ ± 5%)	[R178]
176	RR-TZ3018SCZZ	AC		B	Block resistor(470Ω x4)	[RA1]
177	RR-TZ3018SCZZ	AC		B	Block resistor(470Ω x4)	[RA2]
178	RR-TZ3018SCZZ	AC		B	Block resistor(470Ω x4)	[RA3]
179	RR-TZ3017SCZZ	AC		B	Block resistor(270Ω x4)	[RA4]
180	RH-iX2357XHZZ	AH		B	IC(S-814A33AUA)	[REG1]
181	RCRSP2176SCZZ	AG		B	Crystal(32.256MHz)	[X1]
182	RCRSB0297AFZZ	AD		B	Crystal(32.768kHz)	[X2]
183	VHE1N4748A/-1	AC		B	Diode(1N4748A)	[ZD1]
184	VHE02CZ180Y-1	AC		B	(02CZ180Y)	[ZD100]

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
[6] Control PWB unit						
	(Unit)					
901	DCEKC688TXHZZ	BT	N	E	Control PWB unit(Within ROM)	
[7] TEL/LIU PWB unit						
1	VHVRA391PV6-1	AE		B	Varistor(RA-391P-V6-2)	[AR1]
2	VHVRA501PC6-1	AG		B	Varistor(RA501P-C6)	[AR3]
3	VCEAGA1HW107M	AA		C	Capacitor(50WV 100µ F)	[C1]
4	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µ F)	[C2]
5	VCEAGA1HW226M	AB		C	Capacitor(50WV 22µ F)	[C3]
6	VCEAGA1HW225M	AA		C	Capacitor(50WV 2.2µ F)	[C4]
7	VCKYPA1HB103K	AA		C	Capacitor(50WV 0.01µ F)	[C5]
8	RC-FZ3024SCZZ	AG		C	Capacitor(250WV 0.82µ F)	[C6]
9	VCEAGA1HW475M	AA		C	Capacitor(50WV 4.7µ F)	[C7]
10	VCEAGA1HW106M	AA		C	Capacitor(50WV 10µ F)	[C8]
11	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C100]
12	VCKYCY1HF104Z	AA		C	Capacitor(50WV 0.1µ F)	[C101]
13	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C103]
14	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C104]
15	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C105]
16	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C106]
17	VCCCCY1HH221J	AA		C	Capacitor(50WV 220PF)	[C109]
18	VCKYCY1HB102K	AA		C	Capacitor(50WV 1000PF)	[C110]
19	VCCCCY1HH221J	AA		C	Capacitor(50WV 1000PF)	[C111]
20	VCKYCY1HB222K	AA		C	Capacitor(50WV 2200PF)	[C114]
21	RRLYD3433XHZZ	AH		B	Relay(OUAZ-SH-124DZ)	[CML]
22	QCNCW715MAFZZ	AF		C	Connector(12pin)	[CNLIUA]
23	VHD1N4148//-1	AA		B	Diode(1N4148)	[D1]
24	VHD1N4148//-1	AA		B	Diode(1N4148)	[D2]
25	VHD1N4148//-1	AA		B	Diode(1N4148)	[D3]
26	VHD1N4148//-1	AA		B	Diode(1N4148)	[D4]
27	RH-iX2383XHZZ	AG	N	B	IC(LM2902NS)	[IC100]
28	RCiLZ2129SCZZ	AE		C	Coil(K5A R6H 6x10(W)2.5TS)	[L3]
29	QJAKZ2060SC0B	AD		C	Jack	[MJ1]
30	QJAKZ2079XH0D	AD		C	Jack	[MJTEL]
31	VHPPC817X4/-1	AC		B	Photo coupler(PC817X4)	[PC1]
⚠ 32	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PH1]
⚠ 33	VHPSG206S//-1	AG		B	Photo transistor(SG206S)	[PH2]
34	VSKTC3198GR-1	AD		B	Transistor(KTC3198GR)	[Q1]
35	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q100]
36	VSRT1P141C+-1	AB		B	Transistor(RT1P141C)	[Q101]
37	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q102]
38	VSRT1N436C/-1	AD		B	Transistor(RT1N436C)	[Q103]
39	VRS-RE2HA101J	AB		C	Resistor(1/2W 100Ω ± 5%)	[R1]
40	VRS-RE3AA122J	AC		C	Resistor(1W 1.2KΩ ± 5%)	[R2]
41	VRD-HT2HY202J	AA		C	Resistor(1/2W 2KΩ ± 5%)	[R3]
42	VRS-HT3AA510J	AA		C	Resistor(1W 51Ω ± 5%)	[R4]
43	VRD-HT2EY101J	AA		C	Resistor(1/4W 100Ω ± 5%)	[R5]
44	VRD-HT2EY151J	AA		C	Resistor(1/4W 150Ω ± 5%)	[R6]
45	VRD-HT2HY223J	AA		C	Resistor(1/2W 22KΩ ± 5%)	[R7]
46	VRD-HT2EY223J	AA		C	Resistor(1/4W 22KΩ ± 5%)	[R8]
47	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ± 5%)	[R100]
48	VRS-CY1JB621J	AA		C	Resistor(1/16W 620Ω ± 5%)	[R101]
49	VRS-CY1JB473J	AA		C	Resistor(1/16W 47KΩ ± 5%)	[R102]
50	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ± 5%)	[R103]
51	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ± 5%)	[R104]
52	VRS-CY1JB273J	AA		C	Resistor(1/16W 27KΩ ± 5%)	[R105]
53	VRS-CY1JB823J	AD		C	Resistor(1/16W 82KΩ ± 5%)	[R106]
54	VRS-CY1JB362J	AA		C	Resistor(1/16W 3.6KΩ ± 5%)	[R107]
55	VRS-CY1JB133J	AA		C	Resistor(1/16W 13KΩ ± 5%)	[R108]
56	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ± 5%)	[R109]
57	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R110]
58	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R111]
59	VRS-CY1JB163J	AA		C	Resistor(1/16W 16KΩ ± 5%)	[R112]
60	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[R113]
61	VRS-CY1JB563J	AA		C	Resistor(1/16W 56KΩ ± 5%)	[R114]
62	VRS-CY1JB393J	AA		C	Resistor(1/16W 39KΩ ± 5%)	[R115]
63	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ± 5%)	[R116]
64	VRS-CY1JB822J	AA		C	Resistor(1/16W 8.2KΩ ± 5%)	[R117]
65	VRS-CY1JB133J	AA		C	Resistor(1/16W 13KΩ ± 5%)	[R118]
66	VRS-CY1JB332J	AA		C	Resistor(1/16W 3.3KΩ ± 5%)	[R119]
67	VRS-CY1JB224J	AA		C	Resistor(1/16W 220KΩ ± 5%)	[R120]
68	VRS-CY1JB000J	AA		C	Resistor(1/16W 0Ω ± 5%)	[R122]
69	VRS-CY1JB152J	AA		C	Resistor(1/16W 1.5KΩ ± 5%)	[R123]
70	VRS-CY1JB102J	AA		C	Resistor(1/16W 1KΩ ± 5%)	[R124]
71	QSW-Z2317XHZZ	AF		C	Hook switch	[SW1]
⚠ 72	RTRNi2164XHZZ	AG		B	Transformer(2164)	[T1]
73	VHEHZ6A3///-1	AC		B	Zener diode(HZ6A3)	[ZD2]
74	VHEHZ2C1///-1	AA		B	Zener diode(HZ2C1)	[ZD3]
75	VHEHZ2C1///-1	AA		B	Zener diode(HZ2C1)	[ZD4]
76	VHEHZ9C3///-1	AE		B	Zener diode(HZ9C3)	[ZD5]
77	VHEHZ27-1//-1	AB		B	Zener diode(HZ27)	[ZD6]
	(Unit)					
901	DCEKL477CXH02	BG		E	TEL/LIU PWB unit	

[8] Power supply PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	0CBUGFM224KR/	AF		C	Capacitor(275WV 0.22μ F)	[C1]
2	0CBUGA0291ZZ/	AC		C	Capacitor(200WV 220μ F)	[C2]
3	0CBUGCU471EL/	AF		C	Capacitor(1KWV 470PF)	[C3]
4	0CBUGXJQF102/	AC		C	Capacitor(50WV 1000PF)	[C4]
5	0CBUGXHWF153/	AF		C	Capacitor(50WV 0.015μ F)	[C5]
6	0CBUEXBAF000/	AC		C	Resistor(1/16W 0Ω ± 5%)	[C6]
7	0CBUGA0315ZZ/	AL		C	Capacitor(35WV 560μ F)	[C8]
8	0CBUGA0302ZZ/	AK		C	Capacitor(16WV 330μ F)	[C10]
9	0CBUGXJXD104/	AD		C	Capacitor(25WV 0.1μ F)	[C12]
10	0CBUGCS222AJ/	AD		C	Capacitor(500WV 2200PF)	[C13]
11	0CBUGXHPF391/	AD		C	Capacitor(50WV 390PF)	[C24]
12	0CBUGCM103BH/	AD		C	Capacitor(250WV 0.01μ F)	[C26]
13	0CBUGCM103BH/	AD		C	Capacitor(250WV 0.01μ F)	[C27]
14	0CBUGCU472BW/	AD		C	Capacitor(1KWV 4700PF)	[C31]
15	0CBPKZ0194ZZ/	AC		C	Base post ass'y(B 2P3-VH)	[CNAC]
16	0CBPCZ0307ZZ/	AD		C	Connector(IMSA-9110S-06)	[CNPS]
17	0CBUBF0002AK/	AD		B	Diode(10EDB60)	[D1]
18	0CBUBF0002AK/	AD		B	Diode(10EDB60)	[D2]
19	0CBUBF0002AK/	AD		B	Diode(10EDB60)	[D3]
20	0CBUBF0002AK/	AD		B	Diode(10EDB60)	[D4]
21	0CBUBA0003BL/	AD		B	Diode(1S2076A)	[D5]
22	0CBUBC0336AZ/	AL		B	Diode(S3L20U)	[D7]
23	0CBUBC0070AM/	AG		B	Diode(ERA81-004V3)	[D8]
24	0CBUBC0169CL/	AE		B	Diode(ERA22-06V3)	[D9]
25	0CBPJCEJ3151/	AH		A	Fuse(3.15A/AC125V)	[F1]
26	0CBPZZ1008ZZ/	AH		A	Circuit protector(4A/32V)	[F3]
27	0CBBFZ89902Z/	AD		C	Beads core(3A)	[FB2]
28	0CBBFZ89633Z/	AD		C	Beads inductor(BP53RB052025050)	[FB3]
29	0CBUKZ1186ZZ/	AH		C	Filter(33mH/0.5A)	[L1]
30	0CBUZZ0213ZZ/	AN		C	Inductor(RS912)	[L2]
31	0CBLRZ6987ZA/	AQ		C	Heat sink(MN210-5001AT)	[MT2]
32	0CBUDC0062MZ/	AG		B	Photo coupler(PS2501-1L)	[PC1]
33	0CBUAG0213AC/	AK		B	FET(2SK3306)	[Q1]
34	0CBUAC0255AM/	AD		B	Transistor(2SC4115S)	[Q2]
35	0CBUAC0264AK/	AD		B	Transistor(2SC1741AS)	[Q3]
36	0CBUAC0034EL/	AD		B	Transistor(2SC1740S)	[Q4]
37	0CBUEXDAW334/	AC		C	Resistor(1/4W 330KΩ ± 5%)	[R1]
38	0CBUEXDAW474/	AC		C	Resistor(1/4W 470KΩ ± 5%)	[R2]
39	0CBUEXDAW474/	AC		C	Resistor(1/4W 470KΩ ± 5%)	[R3]
40	0CBUEEB681CT/	AC		C	Resistor(1/4W 680Ω ± 5%)	[R4]
41	0CBUEXCAP272/	AC		C	Resistor(1/10W 2.7KΩ ± 5%)	[R5]
42	0CBUEXBAF183/	AC		C	Resistor(1/16W 18KΩ ± 5%)	[R6]
43	0CBUEXBAF181/	AC		C	Resistor(1/16W 18KΩ ± 5%)	[R7]
44	0CBUEXBAF473/	AC		C	Resistor(1/16W 47KΩ ± 5%)	[R8]
45	0CBUEXBAF470/	AC		C	Resistor(1/16W 47Ω ± 5%)	[R9]
46	0CBUEFDR15DB/	AE		C	Metal film resistor(1W 0.15Ω ± 5%)	[R10]
47	0CBUEXDAW334/	AC		C	Resistor(1/4W 330KΩ ± 5%)	[R11]
48	0CBUEXDAW334/	AC		C	Resistor(1/4W 330KΩ ± 5%)	[R12]
49	0CBUEEB472CT/	AC		C	Resistor(1/4W 4.7KΩ ± 5%)	[R13]
50	0CBUEXCAP102/	AC		C	Resistor(1/16W 1KΩ ± 5%)	[R14]
51	0CBUEXBAF334/	AC		C	Resistor(1/16W 330KΩ ± 5%)	[R15]
52	0CBUEXBAF103/	AC		C	Resistor(1/16W 10KΩ ± 5%)	[R16]
53	0CBUEXBAF332/	AC		C	Resistor(1/16W 3.3KΩ ± 5%)	[R17]
54	0CBUEEB332CT/	AC		C	Resistor(1/4W 3.3KΩ ± 5%)	[R18]
55	0CBUEEB682CT/	AC		C	Resistor(1/4W 6.8KΩ ± 5%)	[R27]
56	0CBUEEB682CT/	AC		C	Resistor(1/4W 6.8KΩ ± 5%)	[R28]
57	0CBUEEB682CT/	AC		C	Resistor(1/4W 6.8KΩ ± 5%)	[R29]
58	0CBUEFE104DS/	AE		C	Metal film resistor(2W 100KΩ ± 5%)	[R30]
59	0CB829653001/	BF		B	Transformer(PTTN146-KTT)	[T1]
60	0CBUEZ0666ZZ/	AD		B	Varistor(S07K150GA)	[V1]
61	0CBUFBA222EQ/	AD		C	Variable resistor(2.2KΩ)	[VR1]
62	0CBUBDQR270A/	AD		B	Zener diode(27HSB-26)	[ZD1]
63	0CBUBDBE4R3C/	AD		B	Zener diode(RD4.3SAB)	[ZD2]
64	0CBUBDDA300A/	AE		B	Zener diode(HZ30CPTK)	[ZD4]
65	0CBUBDBE6R2C/	AC		B	Zener diode(RD6.2SAB2-T1)	[ZD5]
66	0CBUBDBE100C/	AE		B	Zener diode(RD10ESAB-T1)	[ZD8]
67	0CBUBDBE9R1C/	AD		B	Zener diode(RD9.1ESAB2-T1)	[ZD9]
	(Unit)					
⚠ 901	RDENT2198XHZZ	BG		E	Power supply PWB unit	

[9] Operation panel PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION	
1	QSW-Q2331XHZZ	AE		C	Tact switch	[SW]
⚠ 2	QSW-M2246AXZZ	AH		C	FRSNS sensor	
⚠ 3	QSW-M2294XHZZ	AE		C	ORGSNS sensor	
	(Unit)					
901	DCEKP478CXH02	BG		E	Operation panel PWB unit	

■INDEX

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
【 C 】				
CCNWN395BXH01	1-3	AP		C
CGERH2314XH05	4-1	AS	N	C
CGERH2566XH01	5-21	AG		C
CLEVP2358XH01	1-4	AD		C
CLEVP2359XH01	4-2	AD		C
CLEVP2360XH01	4-3	AD		C
CLEVP2361XH01	4-4	AD		C
CLEVP2362XH01	4-5	AD		C
CPAKC271GXH01	5-17	AV	N	D
CPLTP3183XHRF	5-20	AV		C
CPLTP3222XHR2	5-3	AQ		C
CRŌLR2481XH01	1-5	AQ		C
【 D 】				
DCEKC688TXHZZ	1-6	BT	N	E
〃	6-901	BT	N	E
DCEKL477CXH02	1-7	BG		E
〃	7-901	BG		E
DCEKP478CXH02	3-5	BG		E
〃	9-901	BG		E
DCEKP480CXH02	3-901	BG		E
DUNTK497CXHFW	5-1	AY		E
【 G 】				
GCABB2393XHSH	1-35	AZ		D
GCASP2173XHSA	3-1	BA		D
GCŌVA2447XHVA	1-46	AL		D
GCŌVA2448XHVA	2-1	AX		C
GLEGG2078XHZZ	1-47	AD		C
【 H 】				
HPNLH2420XHSN	1-62	AM	N	D
〃	3-21	AM	N	D
【 J 】				
JBTN-2357XHSB	3-2	AK		C
JBTN-2358XHSC	3-4	AP		C
JBTN-2359XHSD	3-3	AQ		C
JBTN-2360XHSC	3-18	AH		C
JBTN-2361XHSD	3-19	AM		C
【 L 】				
LBNDJ2006XHZZ	1-17	AA		C
〃	2-29	AA		C
LBSHP2140XHZA	1-22	AC		C
LBSHP2143XHZZ	1-23	AC		C
LBSHP2148XHZA	2-25	AE		C
LBSHP2149XHZA	2-26	AE		C
LFRM-2225XHVA	1-24	AP		C
LFRM-2226XHZZ	4-6	AQ		C
LFRM-2227XHZZ	2-6	AQ		C
LFRM-2232XHZZ	2-7	AT		C
LHLDZ2224XHZZ	2-18	AL		C
LHLDZ2227XHZZ	1-36	AD		C
LHLDZ2228XHZZ	1-37	AD		C
LPLTG2911XHZZ	3-11	AE		C
LPLTG3181XHZZ	2-19	AD		C
LPLTM3178XHZZ	1-48	AF		C
LPLTM3190XHZZ	4-7	AG		C
LPLTP3175XHZZ	3-12	AD		C
LPLTP3176XHZZ	3-13	AD		C
LPLTP3177XHZZ	1-49	AD		C
LPLTP3179XHZZ	2-20	AD		C
LPLTP3180XHZZ	2-21	AH		C
LPLTP3182XHZZ	2-22	AH		C
LX-BZ2222XHZZ	2-B3	AC		C
LX-BZ2234XHZZ	2-B1	AD		C
LX-BZ2282XHZZ	1-B3	AB		C
LX-WZ2290XHZZ	1-W2	AE		C
【 M 】				
MCAMP2028XHZZ	4-8	AE		C
MLEVP2356XHZA	1-51	AD		C
MLEVP2357XHZZ	1-50	AD		C
MLEVP2363XHZZ	2-8	AD		C
MSPRC3287XHZZ	1-38	AB		C
MSPRC3288XHZZ	1-39	AB		C
MSPRC3295XHZZ	1-25	AB		C
MSPRC3299XHZZ	2-23	AB		C
MSPRC3300XHZZ	2-24	AB		C
MSPRC3301XHZZ	2-2	AB		C
MSPRC3305XHZZ	2-9	AB		C
MSPRC3335XHZZ	2-30	AD		C
MSPRC3340XHZA	1-40	AD		C
MSPRC3346XHZZ	1-66	AD		C
MSPRC3357XHZZ	1-67	AD		C
MSPRD3285XHZZ	1-53	AB		C
MSPRD3286XHZA	1-52	AB		C
MSPRD3291XHZZ	1-54	AD		C
MSPRD3292XHZA	1-55	AB		C
MSPRD3293XHZZ	3-14	AB		C
MSPRD3298XHZZ	4-9	AE		C
MSPRD3302XHZZ	2-10	AB		C
MSPRD3341XHZZ	1-65	AD		C
MSPRD3379XHZZ	1-26	AD		C
MSPRP3297XHZZ	4-23	AD		C
MSPRT3294XHZZ	3-15	AB		C
【 N 】				
NGERH2380XHZZ	4-10	AC		C
NGERH2409XHZZ	4-11	AB		C
NGERH2568XHZZ	5-4	AB		C
NGERH2569XHZZ	1-27	AC		C
NGERH2570XHZZ	1-28	AD		C
NGERH2571XHZZ	4-12	AD		C
NGERH2572XHZZ	4-13	AD		C
NGERH2573XHZZ	4-14	AD		C
NGERH2574XHZZ	4-15	AD		C
NGERH2575XHZZ	4-16	AD		C
NGERH2576XHZZ	4-17	AD		C
NGERH2577XHZZ	4-18	AD		C
NGERH2579XHZA	2-27	AE		C
NGERH2580XHZZ	2-11	AC		C
NGERH2581XHZZ	2-12	AC		C
NGERH2582XHZZ	4-19	AC		C
NGERP2318XHZZ	2-3	AD		C
NRŌLP2332XHZZ	1-29	AD		C
NRŌLR2482XHZZ	1-30	AR		C
NRŌLR2483XHZZ	2-13	AL		C
NRŌLR2485XHZZ	2-28	AQ		C
NRŌLR2504XHZZ	2-14	AL		C
NSFTP2357XHZZ	2-15	AG		C
NSFTP2374XHZZ	2-16	AG		C
【 P 】				
PBRS-2055XHZZ	1-63	AN		C
PCŌVP2130XHZZ	1-41	AE		C
PCŌVP2131XHVA	1-57	AG		C
PCŌVP2132XHZZ	1-58	AD		C
PGiDM2614XHSA	3-16	AL		C
PGiDM2615XHZZ	1-42	AD		C
PGiDM2616XHZZ	1-43	AD		C
PGiDM2617XHZZ	1-31	AD		C
PGiDM2618XHZZ	1-32	AD		C
PGiDM2619XHVA	2-4	AG		C
PGiDM2620XHVA	2-5	AG		C
PGiDM2621XHSA	2-17	AF		C
PRBNN2038SC10	5-5	AL		S
PSHEP3660XHZZ	3-17	AE		C
PSHEZ3687XHZZ	1-64	AD		C
【 Q 】				
QACCD2090XHZZ	1-59	AS	N	B
QCNCM2508SC1B	6-83	AF		C
QCNCM2638SC0F	6-87	AE		C
QCNCM2666XH0C	6-88	AD		C
QCNCM2666XH0G	6-81	AE		C
QCNCM2666XH1F	6-85	AF		C
QCNCM7014SC0B	6-82	AD		C
QCNCM7014SC0C	6-86	AA		C
QCNCM7014SC0F	6-84	AB		C
QCNCM7014SC1E	6-89	AC		C
QCNCW715MAFZZ	7-22	AF		C
QCNWG209BXHŌW	5-2	AH		C
QCNWG370BXHZZ	5-6	AL		C
QCNWN399BXHZZ	1-16	AP		C
〃	3-9	AP		C
QCNWN419BXHZZ	1-33	AL		C
QCNWN483AXHZZ	4-20	AD		C
QCNWN486AXHZZ	1-44	AM		C
QFS-L1037YCZZ	6-93	AD		A
QJAKZ2060SC0B	7-29	AD		C
QJAKZ2079XH0D	7-30	AD		C
QPWBF3368XHZ2	1-8	AQ		E
QSW-F2224SCZZ	4-21	AE		C
QSW-M2246AXZZ	3-7	AH		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
〃	9-2	AH		C
QSW-M2294XHZZ	3-8	AE		C
〃	9-3	AE		C
QSW-Q2331XHZZ	3-6	AE		C
〃	9-1	AE		C
QSW-Z2317XHZZ	7-71	AF		C
【 R 】				
RC-FZ3024SCZZ	7-8	AG		C
RCiLZ2129SCZZ	7-28	AE		C
RCRSB0297AFZZ	6-182	AD		B
RCRSP2176SCZZ	6-181	AG		B
RDENT2198XHZZ	1-61	BG		E
〃	8-901	BG		E
RHEDZ2065XHZZ	1-45	BP		B
RH-iX2321XHZZ	6-95	AX		B
RH-iX2356XHZZ	6-98	AL		B
RH-iX2357XHZZ	6-180	AH		B
RH-iX2383XHZZ	7-27	AG	N	B
RMOTS2175XHZZ	4-22	AX		B
RRLYD3433XHZZ	7-21	AH		B
RR-TZ3017SCZZ	6-179	AC		B
RR-TZ3018SCZZ	6-176	AC		B
〃	6-177	AC		B
〃	6-178	AC		B
RTRNi2164XHZZ	7-72	AG		B
RUNTZ2127XH01	3-10	BC	N	E
RUNTZ2127XHZZ	1-34		N	B
【 S 】				
SPAKA465CXHZZ	5-14	AF		D
SPAKA466CXHZZ	5-15	AF		D
SPAKA467CXHZZ	5-16	AD		D
SPAKP329DXHZZ	5-18	AF		D
【 T 】				
TCADZ2891XHZZ	5-23	AF		D
TCADZ3744XHZZ	5-24	AL	N	D
TCADZ3745XHZZ	5-12	AL	N	D
TiNSE4463XHTZ	5-11	BC	N	D
TLABH498FXHZZ	1-68	AH		D
【 U 】				
UBATL2049SCZZ	6-1	AF		B
【 V 】				
VCCCCY1HH101J	6-13	AA		C
〃	6-14	AA		C
〃	6-19	AA		C
〃	6-20	AA		C
〃	6-21	AA		C
〃	6-23	AA		C
〃	6-24	AA		C
〃	6-60	AA		C
〃	6-62	AA		C
〃	6-63	AA		C
〃	6-71	AA		C
〃	6-72	AA		C
〃	6-73	AA		C
〃	6-74	AA		C
〃	6-75	AA		C
VCCCCY1HH150J	6-29	AB		C
VCCCCY1HH220J	6-51	AA		C
〃	6-52	AA		C
VCCCCY1HH221J	6-37	AA		C
〃	7-11	AA		C
〃	7-17	AA		C
〃	7-19	AA		C
VCCCCY1HH330J	6-28	AA		C
VCEAGA0JW227M	6-2	AD		C
〃	6-4	AD		C
VCEAGA1EW476M	6-3	AA		C
〃	6-7	AA		C
VCEAGA1HW106M	6-5	AA		C
〃	6-6	AA		C
〃	6-8	AA		C
〃	6-9	AA		C
〃	7-10	AA		C
VCEAGA1HW107M	7-3	AA		C
VCEAGA1HW225M	7-6	AA		C
VCEAGA1HW226M	6-10	AB		C
〃	7-4	AB		C
〃	7-5	AB		C
VCEAGA1HW475M	7-9	AA		C
VCKYCY1AB105K	6-55	AB		C
〃	6-56	AB		C
〃	6-66	AB		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VCKYCY1AF105Z	6-35	AC		C
〃	6-36	AC		C
〃	6-38	AC		C
〃	6-39	AC		C
〃	6-42	AC		C
〃	6-45	AC		C
〃	6-46	AC		C
〃	6-47	AC		C
〃	6-48	AC		C
〃	6-49	AC		C
〃	6-50	AC		C
〃	6-58	AC		C
〃	6-59	AC		C
VCKYCY1CB104K	6-65	AB		C
〃	6-68	AB		C
〃	6-69	AB		C
VCKYCY1HB102K	6-11	AA		C
〃	6-12	AA		C
〃	6-57	AA		C
〃	6-76	AA		C
〃	6-77	AA		C
〃	6-78	AA		C
〃	7-13	AA		C
〃	7-14	AA		C
〃	7-15	AA		C
〃	7-16	AA		C
〃	7-18	AA		C
VCKYCY1HB103K	6-26	AA		C
〃	6-30	AA		C
VCKYCY1HB222K	7-20	AA		C
VCKYCY1HB471K	6-79	AB		C
VCKYCY1HB472K	6-31	AA		C
VCKYCY1HF104Z	6-15	AA		C
〃	6-16	AA		C
〃	6-17	AA		C
〃	6-18	AA		C
〃	6-22	AA		C
〃	6-25	AA		C
〃	6-27	AA		C
〃	6-32	AA		C
〃	6-33	AA		C
〃	6-34	AA		C
〃	6-40	AA		C
〃	6-41	AA		C
〃	6-43	AA		C
〃	6-44	AA		C
〃	6-53	AA		C
〃	6-54	AA		C
〃	6-61	AA		C
〃	6-64	AA		C
〃	6-70	AA		C
〃	6-80	AA		C
〃	6-150	AA		C
〃	7-12	AA		C
VCKYPA1HB103K	7-7	AA		C
VHD1N4148//-1	7-23	AA		B
〃	7-24	AA		B
〃	7-25	AA		B
〃	7-26	AA		B
VHD1SS355//-1	6-91	AB		B
〃	6-92	AB		B
VHDHRW0202B-1	6-90	AD		B
VHE02CZ180Y-1	6-184	AC		B
VHE1N4748A/-1	6-183	AC		B
VHEHZ27-1//-1	7-77	AB		B
VHEHZ2C1///-1	7-74	AA		B
〃	7-75	AA		B
VHEHZ6A3///-1	7-73	AC		B
VHEHZ9C3///-1	7-76	AE		B
VHiF002/TC89B	6-94	BD	N	B
VHiNJM2113M-1	6-97	AG		B
VHiSCE209//-1	6-96	BH		B
VHPPC817X4/-1	7-31	AC		B
VHPSG206S//-1	7-32	AG		B
〃	7-33	AG		B
VHVRA391PV6-1	7-1	AE		B
VHVRA501PC6-1	7-2	AG		B
VRD-HT2EY101J	7-43	AA		C
VRD-HT2EY151J	7-44	AA		C
VRD-HT2EY223J	7-46	AA		C
VRD-HT2HY202J	7-41	AA		C
VRD-HT2HY223J	7-45	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CY1JB000J	6-67	AA		C
〃	6-99	AA		C
〃	6-100	AA		C
〃	6-101	AA		C
〃	6-115	AA		C
〃	6-123	AA		C
〃	6-140	AA		C
〃	6-152	AA		C
〃	6-170	AA		C
〃	7-60	AA		C
〃	7-68	AA		C
VRS-CY1JB101J	6-171	AA		C
VRS-CY1JB102J	6-121	AA		C
〃	6-125	AA		C
〃	6-134	AA		C
〃	6-135	AA		C
〃	6-137	AA		C
〃	6-138	AA		C
〃	6-151	AA		C
〃	6-166	AA		C
〃	7-57	AA		C
〃	7-58	AA		C
〃	7-70	AA		C
VRS-CY1JB103J	6-119	AA		C
〃	6-129	AA		C
〃	6-131	AA		C
〃	6-141	AA		C
〃	6-148	AA		C
〃	6-149	AA		C
〃	6-173	AA		C
〃	6-174	AA		C
VRS-CY1JB104J	6-139	AA		C
〃	6-175	AA		C
VRS-CY1JB105J	6-133	AA		C
〃	6-158	AA		C
VRS-CY1JB106J	6-147	AA		C
VRS-CY1JB124J	6-126	AA		C
〃	6-165	AA		C
VRS-CY1JB133J	7-55	AA		C
〃	7-65	AA		C
VRS-CY1JB150J	6-102	AA		C
VRS-CY1JB151J	6-130	AA		C
〃	6-168	AA		C
〃	6-169	AA		C
VRS-CY1JB152J	7-69	AA		C
VRS-CY1JB163J	7-59	AA		C
VRS-CY1JB203J	6-124	AA		C
〃	6-127	AA		C
〃	6-143	AA		C
〃	6-153	AA		C
VRS-CY1JB222J	6-156	AA		C
VRS-CY1JB223J	6-155	AA		C
VRS-CY1JB224J	6-128	AA		C
〃	6-144	AA		C
〃	7-67	AA		C
VRS-CY1JB271J	6-113	AA		C
〃	6-114	AA		C
〃	6-120	AA		C
〃	6-146	AA		C
〃	6-154	AA		C
〃	6-160	AA		C
〃	6-161	AA		C
〃	6-162	AA		C
〃	6-163	AA		C
〃	6-167	AA		C
〃	6-172	AA		C
VRS-CY1JB273J	7-52	AA		C
VRS-CY1JB301J	6-136	AA		C
VRS-CY1JB332J	7-47	AA		C
〃	7-50	AA		C
〃	7-51	AA		C
〃	7-56	AA		C
〃	7-63	AA		C
〃	7-66	AA		C
VRS-CY1JB362J	7-54	AA		C
VRS-CY1JB392J	6-157	AA		C
VRS-CY1JB393J	6-164	AA		C
〃	7-62	AA		C
VRS-CY1JB471J	6-116	AA		C
〃	6-117	AA		C
〃	6-118	AA		C
〃	6-132	AA		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
VRS-CY1JB473J	7-49	AA		C
VRS-CY1JB474J	6-142	AA		C
VRS-CY1JB512J	6-122	AA		C
VRS-CY1JB513J	6-145	AA		C
VRS-CY1JB562J	6-112	AA		C
VRS-CY1JB563J	7-61	AA		C
VRS-CY1JB621J	7-48	AA		C
VRS-CY1JB752J	6-159	AA		C
VRS-CY1JB822J	7-64	AA		C
VRS-CY1JB823J	7-53	AD		C
VRS-HT3AA510J	7-42	AA		C
VRS-RE2HA101J	7-39	AB		C
VRS-RE3AA122J	7-40	AC		C
VS2SA1530AS-1	6-103	AC		B
VSKTC3198GR-1	7-34	AD		B
VSRT1N141C/-1	6-104	AB		B
〃	6-105	AB		B
〃	6-106	AB		B
〃	6-107	AB		B
〃	6-110	AB		B
〃	6-111	AB		B
VSRT1N436C/-1	7-35	AD		B
〃	7-37	AD		B
〃	7-38	AD		B
VSRT1P141C+-1	6-109	AB		B
〃	7-36	AB		B
VSSi4431BDY-1	6-108	AL	N	B
【 X 】				
XEBSD20P06000	3-B1	AA		C
XEBSD30P08000	4-B1	AA		C
XEBSD30P10000	1-B1	AA		C
〃	2-B2	AA		C
XEBSD30P12000	1-B2	AA		C
XEPSD30P08000	1-B4	AA		C
XWHSN40-08100	1-W1	AA		C
【 0 】				
0CB829653001/	8-59	BF		B
0CBBFZ89633Z/	8-28	AD		C
0CBBFZ89902Z/	8-27	AD		C
0CBLRZ6987ZA/	8-31	AQ		C
0CBPCZ0307ZZ/	8-16	AD		C
0CBPJCEJ3151/	8-25	AH		A
0CBPKZ0194ZZ/	8-15	AC		C
0CBPZZ1008ZZ/	8-26	AH		A
0CBUAC0034EL/	8-36	AD		B
0CBUAC0255AM/	8-34	AD		B
0CBUAC0264AK/	8-35	AD		B
0CBUAG0213AC/	8-33	AK		B
0CBUBA0003BL/	8-21	AD		B
0CBUBC0070AM/	8-23	AG		B
0CBUBC0169CL/	8-24	AE		B
0CBUBC0336AZ/	8-22	AL		B
0CBUBDBE100C/	8-66	AE		B
0CBUBDBE4R3C/	8-63	AD		B
0CBUBDBE6R2C/	8-65	AC		B
0CBUBDBE9R1C/	8-67	AD		B
0CBUBDDA300A/	8-64	AE		B
0CBUBDQR270A/	8-62	AD		B
0CBUBF0002AK/	8-17	AD		B
〃	8-18	AD		B
〃	8-19	AD		B
〃	8-20	AD		B
0CBUDC0062MZ/	8-32	AG		B
0CBUEEB332CT/	8-54	AC		C
0CBUEEB472CT/	8-49	AC		C
0CBUEEB681CT/	8-40	AC		C
0CBUEEB682CT/	8-55	AC		C
〃	8-56	AC		C
〃	8-57	AC		C
0CBUEFDR15DB/	8-46	AE		C
0CBUEFE104DS/	8-58	AE		C
0CBUEXBAF000/	8-6	AC		C
0CBUEXBAF103/	8-52	AC		C
0CBUEXBAF181/	8-43	AC		C
0CBUEXBAF183/	8-42	AC		C
0CBUEXBAF332/	8-53	AC		C
0CBUEXBAF334/	8-51	AC		C
0CBUEXBAF470/	8-45	AC		C
0CBUEXBAF473/	8-44	AC		C
0CBUEXCAP102/	8-50	AC		C
0CBUEXCAP272/	8-41	AC		C
0CBUEXDAW334/	8-37	AC		C

PARTS CODE	No.	PRICE RANK	NEW MARK	PART RANK
〃	8-47	AC		C
〃	8-48	AC		C
0CBUEXDAW474/	8-38	AC		C
〃	8-39	AC		C
0CBUEZ0666ZZ/	8-60	AD		B
0CBUFBA222EQ/	8-61	AD		C
0CBUGA0291ZZ/	8-2	AC		C
0CBUGA0302ZZ/	8-8	AK		C
0CBUGA0315ZZ/	8-7	AL		C
0CBUGCM103BH/	8-12	AD		C
〃	8-13	AD		C
0CBUGCS222AJ/	8-10	AD		C
0CBUGCU471EL/	8-3	AF		C
0CBUGCU472BW/	8-14	AD		C
0CBUGFM224KR/	8-1	AF		C
0CBUGXHPF391/	8-11	AD		C
0CBUGXHWF153/	8-5	AF		C
0CBUGXJQF102/	8-4	AC		C
0CBUGXJXD104/	8-9	AD		C
0CBUKZ1186ZZ/	8-29	AH		C
0CBUZZ0213ZZ/	8-30	AN		C

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